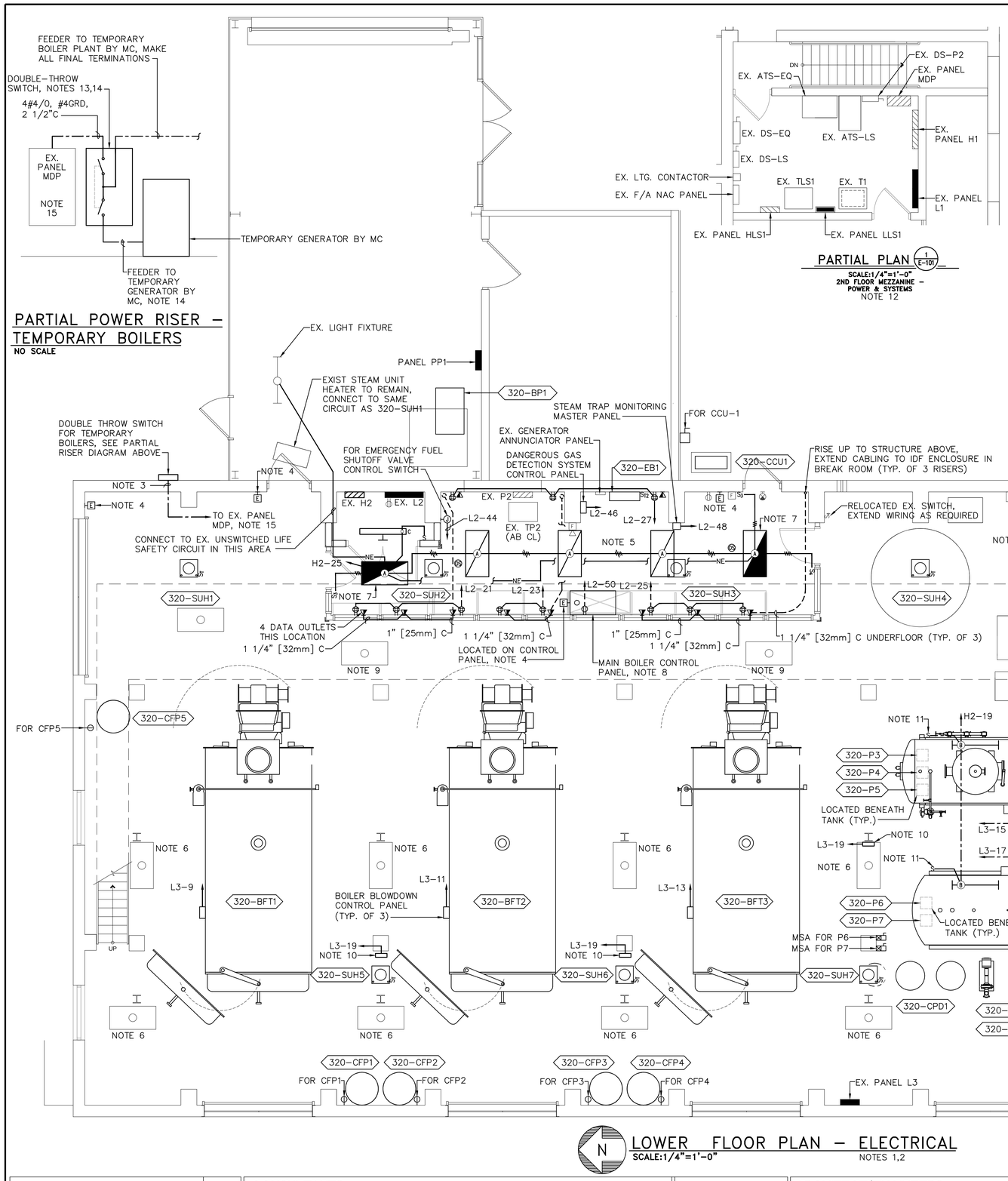
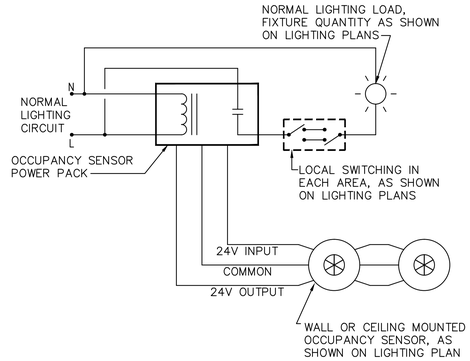


PARTIAL POWER RISER – TEMPORARY BOILERS

NO SCALE

PARTIAL PLAN (1/E-101)

SCALE:1/4"=1'-0"
2ND FLOOR MEZZANINE – POWER & SYSTEMS
NOTE 12



DETAIL (2)

NO SCALE
TYPICAL OCCUPANCY SENSOR WIRING DIAGRAM

LOWER FLOOR PLAN – ELECTRICAL

SCALE:1/4"=1'-0"
NOTES 1,2

NOTES:

1. ALL EXISTING ELECTRICAL ITEMS TO REMAIN, UNLESS NOTED OTHERWISE.
2. MECHANICAL EQUIPMENT SHOWN ON THIS PLAN FOR LOCATION REFERENCE ONLY. REFER TO MECHANICAL EQUIPMENT SCHEDULE, DRAWING E-501, FOR WIRING AND CIRCUIT REQUIREMENTS.
3. INSTALL THROUGH EXISTING SLEEVE, ENLARGE SLEEVE AS REQUIRED FOR INSTALLATION OF INDICATED CONDUIT.
4. EMERGENCY STOP PUSHBUTTON FOR BOILER SHUTDOWN, FURNISH AND INSTALL WIRING BETWEEN PUSHBUTTON(S) AND SHUTDOWN CONTACTS IN CONTROL PANEL OF EACH BOILER AS REQUIRED BY MANUFACTURER. ACTIVATION OF ANY PUSHBUTTON SHALL DE-ENERGIZE ALL THREE BOILERS.
16. ALL FIXTURES IN ROOM SHALL BE CONTROLLED BY OCCUPANCY SENSING SYSTEM. ALL LOCAL SWITCHING SHALL BE WIRED DOWNSTREAM OF SENSOR POWER PACKS, REFER TO DETAIL 2 THIS SHEET FOR TYPICAL WIRING DIAGRAM. FURNISH AND INSTALL ALL COMPONENTS (POWER PACKS, RELAYS, WIRING, ETC.) AS REQUIRED BY THE OCCUPANCY SENSOR MANUFACTURER FOR A COMPLETE AND FULLY FUNCTIONAL SYSTEM.
17. EXISTING FIXTURE TO BE RELOCATED AS SHOWN, EXTEND EXISTING WIRING AS REQUIRED. FURNISH SUPPORT FRAMING TO MOUNT FIXTURE TO CATWALK, BOTTOM OF FIXTURE SHALL BE MOUNTED EVEN WITH BOTTOM OF CATWALK.
18. FURNISH FIXTURE WITH TWO BALLASTS, ONE BALLAST SHALL CONTROL ONE LAMP AND BE WIRED TO SWITCHED LEG OF NORMAL CIRCUIT, SECOND BALLAST SHALL CONTROL SECOND LAMP AND BE WIRED TO UNSWITCHED NORMAL-EMERGENCY CIRCUIT.
19. FURNISH AND INSTALL DUPLEX RECEPTACLE MOUNTED IN CONTROL PANEL, COORDINATE EXACT MOUNTING LOCATION IN FIELD.
20. EXISTING LIGHTING FIXTURE TO BE RELOCATED TO UNDERSIDE OF CATWALK, EXTEND EXISTING WIRING AS REQUIRED. FIXTURE SHALL BE CLEANED AND RELAMPED PRIOR TO INSTALLATION.
21. ELECTRIC TRAP PRIMER, FURNISHED AND INSTALLED BY PLUMBING CONTRACTOR, COORDINATE EXACT LOCATION IN FIELD.
22. MOUNT SWITCH TO VERTICAL TANK SUPPORT, COORDINATE EXACT MOUNTING LOCATION IN FIELD.
23. VERIFY EXACT LOCATION OF ALL ELECTRICAL EQUIPMENT IN ELECTRICAL ROOM BEFORE ROUGH-IN.
24. FURNISH AND INSTALL 480V, 4P, 200A HEAVY-DUTY DOUBLE-THROW SWITCH WITH SOLID NEUTRAL, NEMA 3R ENCLOSURE WITH CAM-LOK QUICK-CONNECTS FOR CONNECTION OF TEMPORARY GENERATOR TO TEMPORARY BOILER PLANT. SWITCH SHALL BE SERVICE ENTRANCE RATED, HAVE DOOR SAFETY INTERLOCK, AND BE UL LISTED FOR USE WITH PORTABLE GENERATORS. SWITCH SHALL HAVE THREE POSITIONS (NORMAL, OFF, EMERGENCY) AND SHALL HAVE INTERLOCK TO PREVENT NORMAL AND EMERGENCY SWITCHES TO BE CLOSED AT SAME TIME. COORDINATE EXACT MOUNTING LOCATION IN FIELD.
25. FURNISH AND INSTALL QUICK CONNECT CORD SETS FOR FINAL CONNECTION OF GENERATOR FEEDER TO DOUBLE-THROW SWITCH. COORDINATE WITH MECHANICAL CONTRACTOR IN FIELD AND MAKE ALL FINAL TERMINATIONS.
26. FURNISH AND INSTALL 200A, 3P CIRCUIT BREAKER IN EXISTING PANEL MDP FOR CONNECTION TO DOUBLE-THROW SWITCH FOR TEMPORARY BOILERS.

Revisions:	Date

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Drawing Title	FLOOR PLANS - ELECTRICAL
Approved: Project Director	
Project Title	BOILER PLANT UPGRADE PHASE V
Location	VAMC MARTINSBURG, WV
Date	10.22.2013
Checked	
Drawn	
Project Number	613-12-501
Building Number	320
Drawing Number	320-E101
Dwg. 43 of 44	

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

MECHANICAL EQUIPMENT SCHEDULE

	ELECTRICAL INFORMATION							DISCONNECT SWITCH					STARTER
DESIG	REMARKS	HP	MCA	KW	VOLTS PHASE	CIRCUIT	WIRING	AMPS	POLES	VOLTS	FUSE AMPS	NEMA ENCL	DESIG
BFT1	VIA VFD	60/15/1	120	–	480/3	H2–2	3#1/0, #6GRD, 1 1/2"C						
BFT2	VIA VFD	60/15/1	120	–	480/3	H2–8	3#1/0, #6GRD, 1 1/2"C						
BFT3	VIA VFD	60/15/1	120	–	480/3	H2–14	3#1/0, #6GRD, 1 1/2"C						
BP1	VIA CONTROL PANEL	2x7.5	–	–	480/3	H2–38, NOTE 2	3#10, #10GRD, 3/4"C						
CCU1	VIA CONTROL PANEL	–	14	–	208/1	L2–26	2#12, #12GRD, 3/4"C	30	2	240	*	3R	
CFP1	FURNISH AND INSTALL SINGLE NEMA 5–20R RECEPTACLE ADJACENT TO UNIT	–	–	0.25	120/1	L3–7	2#12, #12GRD, 3/4"C						
CFP2	FURNISH AND INSTALL SINGLE NEMA 5–20R RECEPTACLE ADJACENT TO UNIT	–	–	0.25	120/1	L3–7	2#12, #12GRD, 3/4"C						
CFP3	FURNISH AND INSTALL SINGLE NEMA 5–20R RECEPTACLE ADJACENT TO UNIT	–	–	0.25	120/1	L3–7	2#12, #12GRD, 3/4"C						
CFP4	FURNISH AND INSTALL SINGLE NEMA 5–20R RECEPTACLE ADJACENT TO UNIT	–	–	0.25	120/1	L3–7	2#12, #12GRD, 3/4"C						
CFP5	FURNISH AND INSTALL SINGLE NEMA 5–20R RECEPTACLE ADJACENT TO UNIT	–	–	0.25	120/1	L2–16	2#12, #12GRD, 3/4"C						
CFP6	FURNISH AND INSTALL SINGLE NEMA 5–20R RECEPTACLE ADJACENT TO UNIT	–	–	0.25	120/1	L2–16	2#12, #12GRD, 3/4"C						
CPD1	VIA CONTROL PANEL	–	4	–	120/1	L–21, NOTE 1	2#12, #12GRD, 3/4"C						
EB1		–	1	–	208/1	L2–30	2#12, #12GRD, 3/4"C						2P MANUAL
P3	VIA VFD, VIA CONTROL PANEL	15	–	–	480/3	H1–1	3#8, #10GRD, 1"C						
P4	VIA VFD, VIA CONTROL PANEL	15	–	–	480/3	H1–7	3#8, #10GRD, 1"C						
P5	VIA VFD, VIA CONTROL PANEL	15	–	–	480/3	H1–13	3#8, #10GRD, 1"C						
P6	VIA CONTROL PANEL	5	–	–	480/3	H1–19	3#12, #12GRD, 1"C						MSA
P7	VIA CONTROL PANEL	5	–	–	480/3	H1–25	3#12, #12GRD, 1"C						MSA
P8	VIA CONTROL PANEL	5	–	–	480/3	H1–60	3#12, #12GRD, 1"C						MSA
P9	VIA CONTROL PANEL	5	–	–	480/3	H1–66	3#12, #12GRD, 1"C						MSA
SUH1	VIA LINE VOLT T'STAT	–	–	0.025	120/1	L2–6	2#12, #12GRD, 3/4"C						MANUAL
SUH2	VIA LINE VOLT T'STAT	–	–	0.025	120/1	L2–6	2#12, #12GRD, 3/4"C						MANUAL
SUH3	VIA LINE VOLT T'STAT	–	–	0.025	120/1	L2–6	2#12, #12GRD, 3/4"C						MANUAL
SUH4	VIA LINE VOLT T'STAT	–	–	0.025	120/1	L2–6	2#12, #12GRD, 3/4"C						MANUAL
SUH5	VIA LINE VOLT T'STAT	–	–	0.025	120/1	L3–2	2#12, #12GRD, 3/4"C						MANUAL
SUH6	VIA LINE VOLT T'STAT	–	–	0.025	120/1	L3–2	2#12, #12GRD, 3/4"C						MANUAL
SUH7	VIA LINE VOLT T'STAT	–	–	0.025	120/1	L3–2	2#12, #12GRD, 3/4"C						MANUAL

* FUSE SIZE TO BE DETERMINED IN FIELD FROM UNIT FULL LOAD AMPS
ALL CIRCUIT BREAKERS ARE EXISTING UNLESS NOTED OTHERWISE
ALL CONTROL PANELS TO BE FURNISHED AND INSTALLED BY HC, FIELD WIRED BY EC

MOTOR STARTER SCHEDULE

STARTER								CONTROL			
DESIG	TYPE	VOLTS PHASE	COIL VOLTS	AUX CONTACT	DISC. SWITCH	POLES	DUAL EL FUSE	TRANS–FORMER	OTHER	NEMA ENCL	REMARKS
MSA	FVNR	480/3	24	NO, NC	30	3	*	N	H–O–A	1	FOR P6, P7, P8, P9

* FUSE SIZE TO BE DETERMINED IN FIELD FROM UNIT FULL LOAD AMPS

LIGHTING FIXTURE SCHEDULE

SCHEDULE ABBREVIATIONS:

LAMP TYPES: FL = FLUORESCENT
BALLAST: EL = ELECTRONIC
ENVIRONMENT: IN = INDOOR
MOUNTING: CLG. HGT. = CEILING HEIGHT: R = RECESSED

FIXTURE TYPE	FIXTURE DESCRIPTION	LAMPS				BALLAST			ENVIR.	MOUNTING		VOLTS	REMARKS
		NO.	WATTS	TYPE	MODEL NUMBER OR CONFIGURATION	NO.	TYPE	BF		TYPE	HEIGHT AFF		
A	SPECIFICATION GRADE TROFFER FIXTURE, 2X4 HEAVY GAUGE STEEL HOUSING, 0.125" THICK PATTERN 12 ACRYLIC PRISMATIC LENS, FLUSH STEEL DOOR, MITERED DOOR CORNERS, 4.25" MAX. FIXTURE DEPTH, BAKED WHITE ENAMEL FINISH	2	28	FL	F28T5	*	EL	1.00	IN	R	CLG HT	277	* FURNISH WITH TWO BALLASTS WHERE SHOWN WIRED TO BOTH NORMAL AND NORMAL/EMERGENCY CIRCUITS
B	PREMIUM INDUSTRIAL STRIP FIXTURE, HEAVY–GAUGE STEEL HOUSING, LONGITUDINAL REINFORCING RIBS, APERTURED TOP WITH 10% UPLIGHT COMPONENT, BAKED WHITE ENAMEL FINISH, PAINTED AFTER FABRICATION, WIRE GUARD, GLASS LENS, CHAIN HUNG	2	28	FL	F28T5	1	EL	1.00	IN	P	*	277	* MOUNT APPROXIMATELY 12" BELOW BOTTOM OF TANK, COORDINATE EXACT MOUNTING LOCATION IN FIELD WITH TANK SUPPORTS
C	4' SPECIFICATION GRADE STRIP FIXTURE, WITH WIRE GUARD	2	28	FL	F28T5	1	EL	1.00	IN	SW	*	277	* MOUNT CENTERED ABOVE DOOR

NOTES:

1. FURNISH AND INSTALL 15A/1P CIRCUIT BREAKER IN EXISTING PANEL L3 FOR CONDENSATE POLISHER CPD1. BREAKER RATINGS SHALL MATCH EXISTING.
2. FURNISH AND INSTALL 30A/3P CIRCUIT BREAKER IN EXISTING PANEL H2 FOR BOOSTER PUMP BP1. BREAKER RATINGS SHALL MATCH EXISTING.

SPECIFICATIONS FOR COMMUNICATION CABLE SYSTEM DESIGN

ALL CABLE INSTALLERS MUST BE TRAINED AND CERTIFIED MEETING CERTIFICATION STANDARDS, I.E., EIA, TIA, ANSI, BICSI, TDM, ITU-T, NFPA, NEC AND NCS. NO PERSONS SHALL CONDUCT ANY INSTALLATIONS THAT HAVE NOT MET THESE CERTIFICATION STANDARDS OF TRAINING AND INSTALLATION.

I. CABLE DESCRIPTION FOR STATION CABLES:

a. ALL CABLES WILL BE UNSHIELDED TWISTED 4-PAIR, RATED CAT 6 OR HIGHER.
b. DATA CABLE SHEATH SHALL BE "DARK BLUE" IN COLOR.
c. VOICE CABLE SHEATH SHALL BE "GRAY" IN COLOR
d. WIRELESS NETWORK SHEATH SHALL BE "BRIGHT GREEN" IN COLOR
e. ALL CABLES MUST BE ONE CONTINUOUS RUN BETWEEN WORK STATION AND IDF ENCLOSURE - NO SPLICES.
f. ALL CABLES WILL BE INSTALLED IN CONDUIT FROM WALL JACK TO CEILING AND STUBBED OUT ABOVE FALSE CEILING AND RUN IN CABLE TRAYS OR OTHER DESIGNATED CABLE SUPPORT TO IDF ENCLOSURE. CABLES SHALL ALSO BE RUN IN CONDUIT FROM ENCLOSURE TO ABOVE CEILING.

II. TERMINATING COPPER CABLE - IN IDF ENCLOSURE

a. ALL DATA CABLES WILL BE TERMINATED ONTO CAT-6 RATED PATCH PANELS, OR EXISTING PATCH PANELS AS DIRECTED BY OIT. RJ-45 DATA CABLES WILL BE TERMINATED USING EIA/TIA-568B WIRING CONFIGURATION. DATA CABLES WILL BE TERMINATED INTO PATCH PANELS MOUNTED ON A STANDARD 19" DATA RACK.
b. ALL VOICE CABLES WILL BE TERMINATED INTO CAT-5E RATED PATCH PANELS AND TERMINATED INTO STANDARD 19" DATA RACK.
c. ALL CABLES WILL BE NUMERICALLY LABELED AT BOTH ENDS OF TERMINATIONS.
d. *NOTE: 110 BLOCKS MAY BE USED WHEN ALREADY INSTALLED IN AN EXISTING CLOSET.

III. TERMINATING COPPER CABLE - AT WORK STATION

a. ALL DATA CABLES WILL BE TERMINATED ON CAT-6 RATED RJ-45 JACK INSERTS, USING EIA/TIA-568B WIRING CONFIGURATION.
b. ALL DATA JACK INSERTS WILL BE BLACK IN COLOR.
c. ALL VOICE CABLES WILL BE TERMINATED ONTO RJ-11 JACK INSERTS USING STANDARD USOC WIRING CONFIGURATION.
d. ALL VOICE JACK INSERTS WILL BE OFFICE WHITE IN COLOR.
e. ALL JACK INSERTS WILL BE INSTALLED UNTO FLUSH WALL MOUNTED FACE PLATES. FACE PLATES SHALL BE OFFICE WHITE IN COLOR. EACH FACE PLATE WILL BE A 4-PORT CONFIGURATION.
f. EACH WORK STATION WILL BE WIRED WITH 2-DATA CABLES AND 1-VOICE CABLE.
g. A COMMUNICATIONS OUTLET WILL BE INSTALLED ON ALL WALLS DESIGNATED AS ADMINISTRATIVE FLOOR SPACE.

IV. CABLE LABELING (NUMBERS ONLY)

a. ALL CABLES WILL BE NUMBERED SEQUENTIALLY AND MECHANICALLY STENCILED WITH BLACK INK - NOT HAND WRITTEN. CABLE NUMBER LABELS WILL BE PLACED AT BOTH ENDS OF EACH CABLE, ON PATCH PANELS, AND WALL MOUNTED FACE PLATES.
b. IF CABLE NUMBERS ALREADY EXIST IN IDF ENCLOSURE, NUMBER LABELING SEQUENCE WILL BE A CONTINUATION OF EXISTING CABLE NUMBERS ALREADY IN PLACE ON DATA PATCH PANELS AND VOICE CABLES.

V. CABLE MANAGEMENT

a. ALL CABLES WILL BE HOME RUN FROM EACH WORK-STATION AREA TO THE DESIGNATED IDF ENCLOSURE.
b. ALL CABLES WILL BE SUSPENDED ABOVE CEILING USING J-TYPE HOOKS OR PLACED IN CABLE TRAYS.
c. IN OFFICE AREAS ALL CABLES WILL BE INSTALLED INSIDE CONDUIT. CONDUIT WILL BE RUN FROM WALL JACK TO EXTEND ABOVE FALSE CEILING WHERE CONDUIT MAYBE STUBBED OUT. (UNLESS SECURITY SPECIFICATIONS REQUIRE ENCLOSED CONDUIT FOR ENTIRE CABLE RUN)
d. ALL WALL PENETRATIONS MADE ABOVE CEILINGS THROUGH FIRE RATED WALLS MUST BE SEALED WITH FIRE RATED MATERIALS. IF EXISTING CONDUITS ARE USED AND FIRE STOPPER MATERIAL IS REMOVED FROM CONDUITS, CONDUITS WILL BE RESEALED WITH RATED MATERIALS ONCE CABLES ARE INSTALLED.
e. CABLES WILL BE NEATLY RUN INTO RACK COMPATIBLE CABLE MANAGEMENT SYSTEMS RACEWAYS.

VI. SELECTION OF MATERIAL

a. ALL MATERIALS SELECTED FOR USE BY INSTALLATION CONTRACTOR MUST BE APPROVED BY VA TELECOMMUNICATIONS PERSONNEL PRIOR TO INSTALLATION.

VII. TESTING CABLE

a. ALL CABLES INSTALLED MUST BE TESTED AND VERIFIED FOR FULL 100MB TRANSMISSION SPEED AND CONTINUITY TO VERIFY THAT ALL PAIRS ARE FUNCTIONAL TO SUPPORT VOICE AND DATA SYSTEMS. TEST RESULTS MUST BE PRINTED AND PROVIDED TO VA TELECOMMUNICATIONS PERSONNEL PRIOR TO ACCEPTANCE OF THE WORK THAT WAS PERFORMED.

VIII. SECURITY CONTROLS

a. COMMUNICATIONS ENCLOSURE MUST BE DESIGNATED FOR THE SOLE PURPOSE OF SUPPORTING INFORMATION TECHNOLOGY SYSTEM EQUIPMENT, I.E., LOCAL AREA NETWORK SWITCHES AND SERVERS AND TELEPHONE SYSTEMS EQUIPMENT AND ITS RELATED CABLE. NO OTHER SYSTEMS OR EQUIPMENT IS ALLOWED THAT WOULD COMPROMISE SECURITY OF THE INSTALLED IT SYSTEMS AND ACCESS CONTROL BY IMS PERSONNEL.

IX. DEMOLISHING OLD CABLE

a. ALL OLD OR UNUSED TELECOMMUNICATIONS DATA AND VOICE CABLE IS TO REMOVED FROM THE THE STATION WALL JACK THROUGH THE CEILING INTO THE TELECOMMUNICATIONS CLOSET AND REMOVED FROM PATCH PANELS AND 110 BLOCKS.

ELECTRICAL SYMBOLS - POWER PLAN

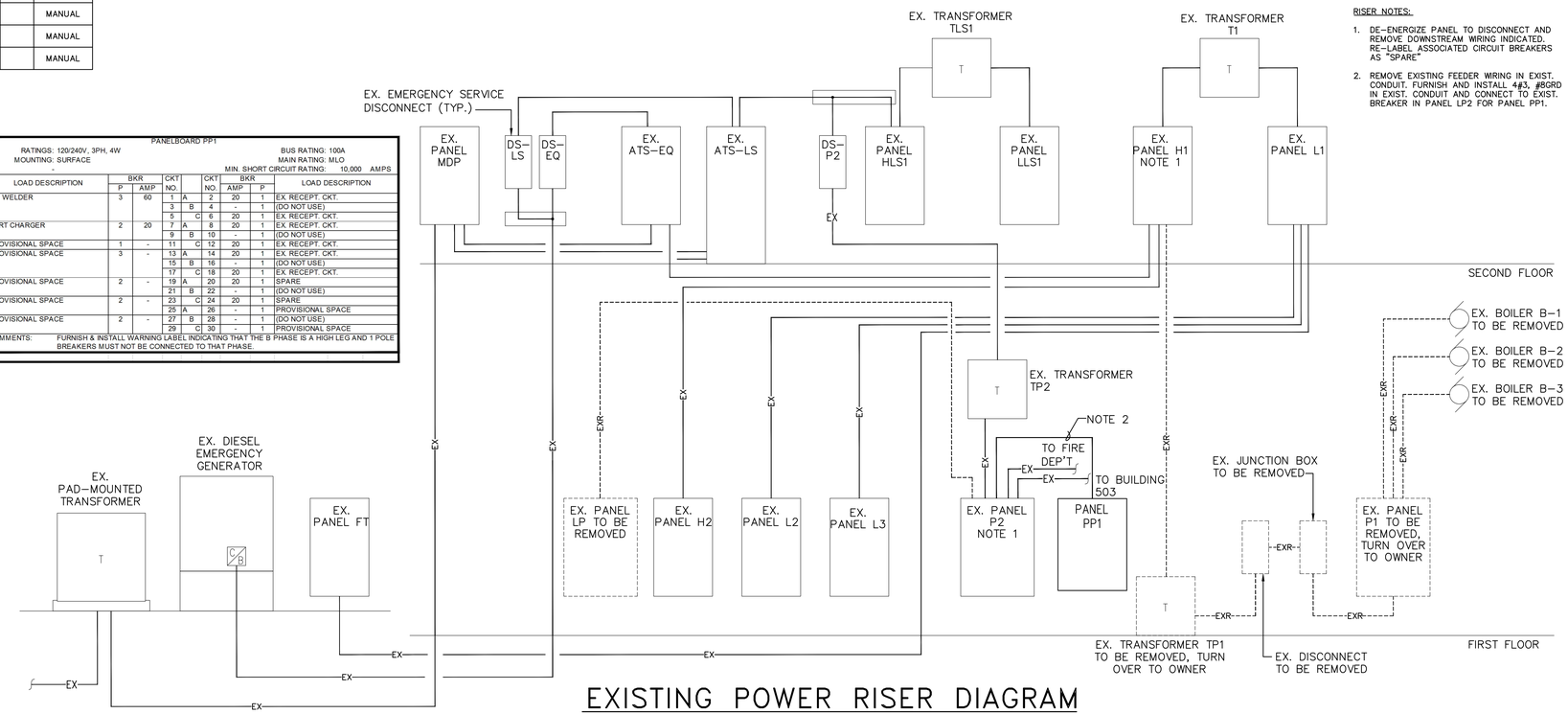
- EXISTING TRANSFORMER
- EXISTING 277/480V PANELBOARD TO REMAIN
- EXISTING 120/208V PANELBOARD TO REMAIN
- EXISTING 120/240V PANELBOARD TO BE REMOVED
- EXISTING RECEPTACLE TO REMAIN
- EXISTING FIRE ALARM PULL STATION TO REMAIN
- EXISTING FIRE ALARM SPEAKER/STROBE TO REMAIN
- EXISTING EXIT SIGN TO REMAIN
- FLUORESCENT LIGHT FIXTURE, RECESSED
- FLUORESCENT LIGHT FIXTURE, RECESSED, NORMAL–EMERGENCY
- S_3 THREE–WAY SWITCH
- S_4 FOUR–WAY SWITCH
- OCCUPANCY SENSOR, CEILING MOUNTED
- 20A, 125V DOUBLE–DUPLEX RECEPTACLE
- 20A, 125V SIMPLEX RECEPTACLE
- STARTER, COMBINATION WITH DISCONNECT SWITCH
- S_T MANUAL STARTER
- S_{T2} 2–POLE MANUAL STARTER
- JUNCTION BOX, WALL MOUNTED
- EMERGENCY STOP PUSHBUTTON
- CONDUIT, CONCEALED IN WALL OR ABOVE CEILING
- – – – CONDUIT, UNDERGROUND
- –EXR– EXISTING WIRING AND CONDUIT TO BE REMOVED
- – EX – EXISTING WIRING AND CONDUIT TO REMAIN

PANELBOARD PP1

RATINGS: 120/240V, 3PH, 4W
MOUNTING: SURFACE
BUS RATING: 100A
MAIN RATING: MLO
MIN. SHORT CIRCUIT RATING: 10,000 AMPS

LOAD DESCRIPTION	BKR P	BKR AMP	CKT NO.		CKT NO.	BKR AMP	BKR P	LOAD DESCRIPTION
EX WELDER	3	60	1	A	2	20	1	EX. RECEPT. CKT.
			3	B	4	-	1	(DO NOT USE)
CART CHARGER	2	20	5	C	6	20	1	EX. RECEPT. CKT.
			7	A	8	20	1	EX. RECEPT. CKT.
PROVISIONAL SPACE	1	-	9	B	10	-	1	(DO NOT USE)
PROVISIONAL SPACE	3	-	11	C	12	20	1	EX. RECEPT. CKT.
			13	A	14	20	1	EX. RECEPT. CKT.
			15	B	16	-	1	(DO NOT USE)
			17	C	18	20	1	EX. RECEPT. CKT.
PROVISIONAL SPACE	2	-	19	A	20	20	1	SPARE
			21	B	22	-	1	(DO NOT USE)
PROVISIONAL SPACE	2	-	23	C	24	20	1	SPARE
			25	A	26	-	1	PROVISIONAL SPACE
PROVISIONAL SPACE	2	-	27	B	28	-	1	(DO NOT USE)
			29	C	30		1	PROVISIONAL SPACE

COMMENTS: FURNISH & INSTALL WARNING LABEL INDICATING THAT THE B PHASE IS A HIGH LEG AND 1 POLE BREAKERS MUST NOT BE CONNECTED TO THAT PHASE.



RISER NOTES:

1. DE–ENERGIZE PANEL TO DISCONNECT AND REMOVE DOWNSTREAM WIRING INDICATED. RE–LABEL ASSOCIATED CIRCUIT BREAKERS AS "SPARE"
2. REMOVE EXISTING FEEDER WIRING IN EXIST. CONDUIT. FURNISH AND INSTALL 4#3, #8GRD IN EXIST. CONDUIT AND CONNECT TO EXIST. BREAKER IN PANEL LP2 FOR PANEL PP1.

EXISTING POWER RISER DIAGRAM

NO SCALE

Revisions:	Date

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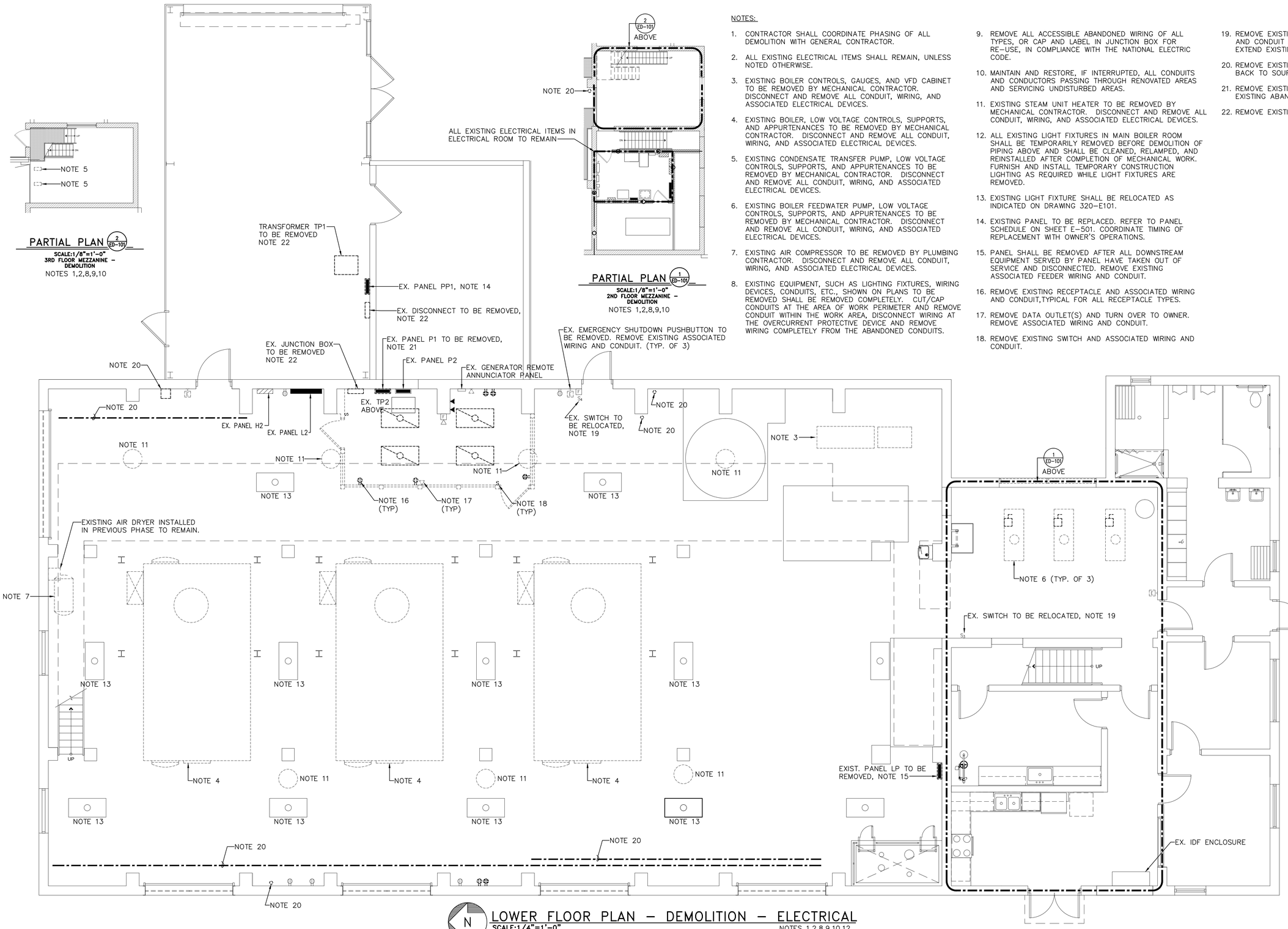
Drawing Title	Project Title	Project Number
DETAILS AND SCHEDULES	BOILER PLANT UPGRADE PHASE V	613–12–501
Approved: Project Director	Location: VAMC MARTINSBURG, WV	Building Number: 320
	Date: 10.22.2013 / Checked / Drawn	Drawing Number: 320–E501
		Dwg. 44 of 44

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08–6231



NOTES:

1. CONTRACTOR SHALL COORDINATE PHASING OF ALL DEMOLITION WITH GENERAL CONTRACTOR.
2. ALL EXISTING ELECTRICAL ITEMS SHALL REMAIN, UNLESS NOTED OTHERWISE.
3. EXISTING BOILER CONTROLS, GAUGES, AND VFD CABINET TO BE REMOVED BY MECHANICAL CONTRACTOR. DISCONNECT AND REMOVE ALL CONDUIT, WIRING, AND ASSOCIATED ELECTRICAL DEVICES.
4. EXISTING BOILER, LOW VOLTAGE CONTROLS, SUPPORTS, AND APPURTENANCES TO BE REMOVED BY MECHANICAL CONTRACTOR. DISCONNECT AND REMOVE ALL CONDUIT, WIRING, AND ASSOCIATED ELECTRICAL DEVICES.
5. EXISTING CONDENSATE TRANSFER PUMP, LOW VOLTAGE CONTROLS, SUPPORTS, AND APPURTENANCES TO BE REMOVED BY MECHANICAL CONTRACTOR. DISCONNECT AND REMOVE ALL CONDUIT, WIRING, AND ASSOCIATED ELECTRICAL DEVICES.
6. EXISTING BOILER FEEDWATER PUMP, LOW VOLTAGE CONTROLS, SUPPORTS, AND APPURTENANCES TO BE REMOVED BY MECHANICAL CONTRACTOR. DISCONNECT AND REMOVE ALL CONDUIT, WIRING, AND ASSOCIATED ELECTRICAL DEVICES.
7. EXISTING AIR COMPRESSOR TO BE REMOVED BY PLUMBING CONTRACTOR. DISCONNECT AND REMOVE ALL CONDUIT, WIRING, AND ASSOCIATED ELECTRICAL DEVICES.
8. EXISTING EQUIPMENT, SUCH AS LIGHTING FIXTURES, WIRING DEVICES, CONDUITS, ETC., SHOWN ON PLANS TO BE REMOVED SHALL BE REMOVED COMPLETELY. CUT/CAP CONDUITS AT THE AREA OF WORK PERIMETER AND REMOVE CONDUIT WITHIN THE WORK AREA, DISCONNECT WIRING AT THE OVERCURRENT PROTECTIVE DEVICE AND REMOVE WIRING COMPLETELY FROM THE ABANDONED CONDUITS.
9. REMOVE ALL ACCESSIBLE ABANDONED WIRING OF ALL TYPES, OR CAP AND LABEL IN JUNCTION BOX FOR RE-USE, IN COMPLIANCE WITH THE NATIONAL ELECTRIC CODE.
10. MAINTAIN AND RESTORE, IF INTERRUPTED, ALL CONDUITS AND CONDUCTORS PASSING THROUGH RENOVATED AREAS AND SERVICING UNDISTURBED AREAS.
11. EXISTING STEAM UNIT HEATER TO BE REMOVED BY MECHANICAL CONTRACTOR. DISCONNECT AND REMOVE ALL CONDUIT, WIRING, AND ASSOCIATED ELECTRICAL DEVICES.
12. ALL EXISTING LIGHT FIXTURES IN MAIN BOILER ROOM SHALL BE TEMPORARILY REMOVED BEFORE DEMOLITION OF PIPING ABOVE AND SHALL BE CLEANED, RELAMPED, AND REINSTALLED AFTER COMPLETION OF MECHANICAL WORK. FURNISH AND INSTALL TEMPORARY CONSTRUCTION LIGHTING AS REQUIRED WHILE LIGHT FIXTURES ARE REMOVED.
13. EXISTING LIGHT FIXTURE SHALL BE RELOCATED AS INDICATED ON DRAWING 320-E101.
14. EXISTING PANEL TO BE REPLACED. REFER TO PANEL SCHEDULE ON SHEET E-501. COORDINATE TIMING OF REPLACEMENT WITH OWNER'S OPERATIONS.
15. PANEL SHALL BE REMOVED AFTER ALL DOWNSTREAM EQUIPMENT SERVED BY PANEL HAVE TAKEN OUT OF SERVICE AND DISCONNECTED. REMOVE EXISTING ASSOCIATED FEEDER WIRING AND CONDUIT.
16. REMOVE EXISTING RECEPTACLE AND ASSOCIATED WIRING AND CONDUIT,TYPICAL FOR ALL RECEPTACLE TYPES.
17. REMOVE DATA OUTLET(S) AND TURN OVER TO OWNER. REMOVE ASSOCIATED WIRING AND CONDUIT.
18. REMOVE EXISTING SWITCH AND ASSOCIATED WIRING AND CONDUIT.
19. REMOVE EXISTING OUTLET BOX AND ASSOCIATED WIRING AND CONDUIT BACK TO A WORKABLE LOCATION, THEN EXTEND EXISTING CIRCUITING BACK TO NEW LOCATION.
20. REMOVE EXISTING ABANDONED CONDUIT IN THIS AREA BACK TO SOURCE PANELBOARD.
21. REMOVE EXISTING ABANDONED FEEDER CONDUITS AND EXISTING ABANDONED DOWNSTREAM CONDUITS.
22. REMOVE EXISTING ASSOCIATED WIRING AND CONDUIT.

Revisions:	Date

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Drawing Title	FLOOR PLANS - DEMOLITION - ELECTRICAL
Approved: Project Director	
Project Title	BOILER PLANT UPGRADE PHASE V
Location	VAMC MARTINSBURG, WV
Date	10.22.2013
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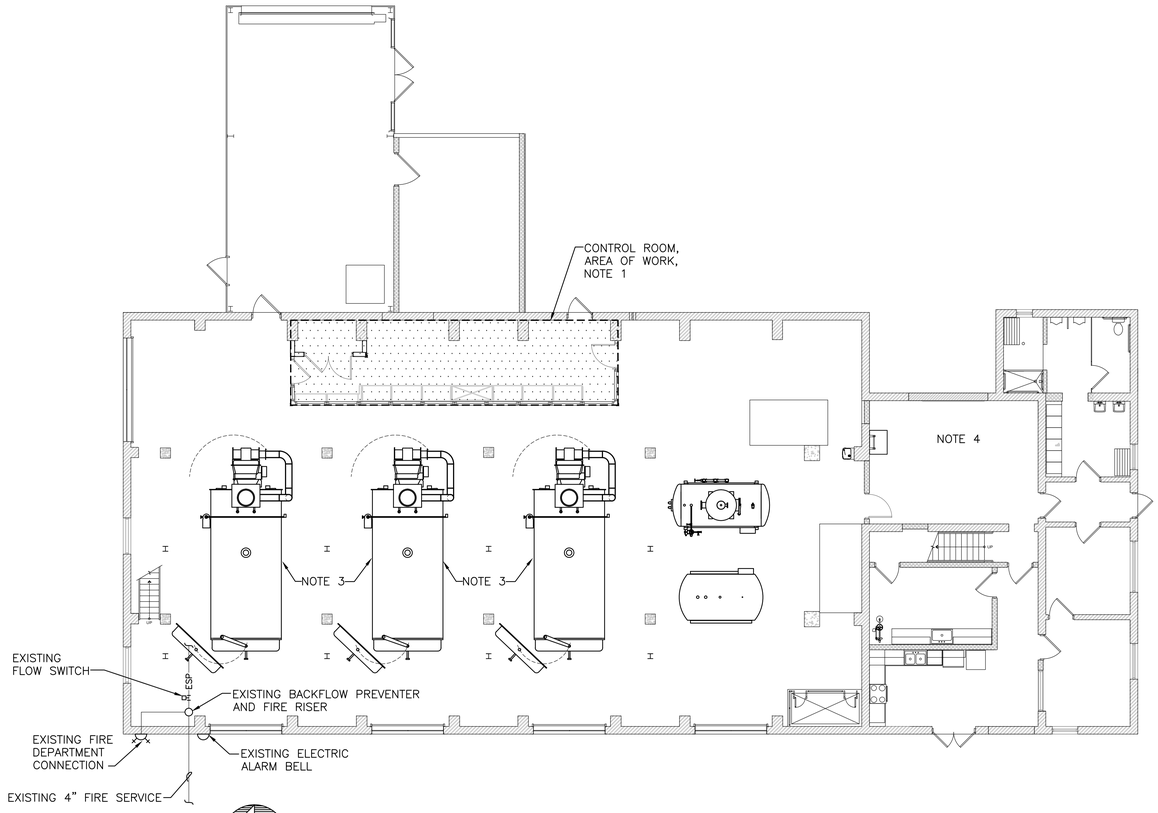
Drawn	
Project Number	613-12-501
Building Number	320
Drawing Number	320-ED101
	Dwg. 42 of 44

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231



N

LOWER FLOOR PLAN – FIRE PROTECTION

SIALE:1/8"=1'-0"

FFE 490.50'
NOTE 2

NOTES:

1. FURNISH AND INSTALL SPRINKLER SYSTEM FOR CONTROL ROOM. EXTEND SPRINKLER PIPING FROM EXISTING PIPING CAPPED ABOVE CEILING OF CONTROL ROOM.
2. THE SPRINKLER SERVICE FOR THE ENTIRE BUILDING, EXCEPT THE CONTROL ROOM, TO BE INSTALLED IN PHASE IV. MODIFY EXISTING SPRINKLER PIPING, SPRINKLER HEADS, AND ASSOCIATED APPURTENANCES AS REQUIRED TO COORDINATE WITH THE INSTALLATION OF ALL NEW MEZZANINES, PIPING, DUCTWORK, ETC.
3. SPRINKLER SYSTEM ABOVE EXISTING BOILERS WAS NOT INSTALLED IN PREVIOUS PROJECT. EXTEND THE EXISTING SPRINKLER SYSTEM TO PROVIDE SPRINKLER PROTECTION AT STRUCTURE ABOVE BOILERS AND BELOW NEW MEZZANINE GRATING AROUND BOILERS. AT COMPLETION OF THIS PROJECT, THE ENTIRE BUILDING SHALL BE FULLY PROTECTED BY THE SPRINKLER SYSTEM.
4. EXISTING SPRINKLER PIPING IN THIS AREA SHALL BE RAISED TO BE LOCATED AS HIGH AS POSSIBLE AFTER REMOVAL OF EXISTING MECHANICAL EQUIPMENT AND PIPING IN THIS AREA.

FIRE PROTECTION CRITERIA

A. THE ENTIRE FIRE PROTECTION SYSTEM SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA 13), 2009 INTERNATIONAL BUILDING CODE, VA FIRE ENGINEER, AND MARTINSBURG VA FIRE CHIEF.

B. THE INFORMATION SHOWN ON THE DRAWINGS AND LISTED IN THE SPECIFICATIONS SHALL NOT BE INTERPRETED AS TO INSTRUCT THE CONTRACTOR TO NOT FOLLOW THE APPLICABLE CODES OR LOCAL AMENDMENTS. WHERE THE INFORMATION PROVIDED IS BELIEVED NOT TO BE IN CONFORMANCE WITH THE CODE REQUIREMENTS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND ENGINEER FOR CLARIFICATION PRIOR TO THE SUBMISSION OF THIS BID PROPOSAL.

C. ALL FIRE PROTECTION PIPING, EQUIPMENT, DEVICES, AND SPRINKLER HEADS SHOWN ON FIRE PROTECTION DRAWINGS ARE FOR ILLUSTRATIVE PURPOSES ONLY TO REPRESENT THE GENERAL SCOPE OF WORK. FINAL FIRE PROTECTION SYSTEM DESIGN AND LAYOUT (INCLUDING SPRINKLER HEAD QUANTITIES AND LOCATIONS AND THEIR SPECIFIC SPACING REQUIREMENTS) IS THE SOLE RESPONSIBILITY OF THE FIRE PROTECTION CONTRACTOR. INSTALLATION DRAWINGS SHOWING THE ENTIRE FIRE PROTECTION SYSTEM(S) SHALL BE GENERATED BY THE FIRE PROTECTION CONTRACTOR. COORDINATE WITH THE ARCHITECTURAL DRAWINGS FOR THE BUILDING'S ARCHITECTURAL AND STRUCTURAL FEATURES.

D. REFERENCES IN THIS PERFORMANCE CRITERIA OR IN THE SPECIFICATIONS TO NFPA STANDARDS AS DESIGN AND INSTALLATION GUIDANCE OF FIRE PROTECTION SYSTEMS, INVOKE ALL OF THE SECTIONS, SUBSECTIONS, EXCEPTIONS AND ADVISORY PROVISION OF THE STANDARDS THAT ARE APPLICABLE TO THE PROJECT'S REQUIREMENTS; THEY ARE HEREBY INCLUDED IN THE PROJECT CRITERIA AND SPECIFICATIONS AS IF REPEATED IN THEIR ENTIRETY, AND ARE REFERENCED TO CONVEY THE MINIMUM ACCEPTABLE PERFORMANCE AND INSTALLATION REQUIREMENTS.

E. REFERENCES TO PROVIDING SPRINKLERS PER THE REQUIREMENTS OF NFPA MANDATES THAT ALL BUILDING AREAS SHALL BE PROVIDED WITH COMPLETE, FULL SPRINKLER PROTECTION, UNLESS SPECIFIC NOTATION IS MADE TO THE CONTRARY ON THE DRAWINGS OR IN THE SPECIFICATIONS.

F. THE ENTIRE BUILDING SHALL BE FULLY SPRINKLERED. FIRE PROTECTION SYSTEM SHALL CONSIST OF A WET PIPE SPRINKLER SYSTEM.

G. THE WET PIPE SPRINKLER SYSTEM SHALL BE HYDRAULICALLY DESIGNED AND SHALL BE BASED UPON A MINIMUM OF 0.20 GPM PER SQ. FT OVER THE MOST REMOTE 1,500 SQ. FT AREA WITH SPRINKLER HEADS SPACED AT A MAXIMUM OF 130 SQ. FT. PER HEAD.

H. UNLESS NOTED OTHERWISE, SPRINKLER HEADS IN FINISHED CEILINGS SHALL BE ADJUSTABLE, SEMI–RECESSED WITH CHROME ESCUTCHEON. FOR OTHER AREAS WHERE CEILINGS ARE NOT INSTALLED, SPRINKLER HEADS SHALL BE BRASS AND OF APPROPRIATE ORIENTATION (UPRIGHT, PENDENT, SIDEWALL). EXTENDED COVERAGE HEADS SHALL BE USED WHERE APPLICABLE AND SHALL BE INSTALLED IN ACCORDANCE WITH THEIR SPECIFIC LISTING(S). TEMPERATURE LISTING FOR SPRINKLER HEADS SHALL BE IN ACCORDANCE WITH NFPA 13 FOR THE LOCATIONS THAT THEY ARE INSTALLED.

I. SPRINKLER HEADS SHALL BE CENTERED IN CEILING TILES ON THE LONG AND SHORT AXIS OF THE TILE. SPRINKLER HEADS SHALL NOT BE CLOSER THAN 12 INCHES TO AIR DIFFUSERS AND GRILLES IN FINISHED CEILINGS.

J. THE TOTAL PROJECT FIRE FLOW IS APPROXIMATELY 600 GPM.

K. THE FOLLOWING FIRE HYDRANT TEST DATA WAS RECORDED BY THE MARTINSBURG VA FIRE CHIEF AT HYDRANT #16.

HYDRANT FLOW RATE.....1220 GPM
RESIDUAL PRESSURE.....46 PSI
STATIC PRESSURE.....56 PSI

L. HYDRAULIC WATER SUPPLY DATA USED IN THE FIRE PROTECTION CONTRACTOR'S HYDRAULIC CALCULATIONS SHALL BE TAKEN FROM FLOW TEST(S) CONDUCTED NOT MORE THAN NINE MONTHS PRIOR TO THE COMMENCEMENT OF THE SYSTEM INSTALLATION.

M. PLASTIC PIPE SHALL NOT BE PERMITTED.

N. SPRINKLER SYSTEMS SHALL BE PROVIDED WITH DRAINS AS REQUIRED BY NFPA 13. AUXILIARY DRAINS SHALL BE PROVIDED FOR ALL SYSTEM LOW POINTS. PIPING SHALL BE EXTENDED AS REQUIRED (WITH SUFFICIENT SLOPE) FROM THE DRAIN CONNECTION TO THE BUILDING EXTERIOR. FURNISH AND INSTALL A SPLASH BLOCK ON GRADE AT EACH DRAIN TERMINATION.

O. COORDINATE WITH ELECTRICAL AND HVAC DRAWINGS FOR LIGHT FIXTURES, SPEAKERS, DIFFUSERS, GRILLES AND OTHER CEILING MOUNTED DEVICES.

P. FURNISH AND INSTALL SPRINKLER HEADS UNDER FIXED OBSTRUCTIONS OVER 4 FEET WIDE SUCH AS DUCTS, DECKS, OPEN GRATE FLOORING, AND OVERHEAD DOORS. MODIFY EXISTING SPRINKLER SYSTEM AS REQUIRED TO COORDINATE WITH THE INSTALLATION OF THE MECHANICAL PIPING, EQUIPMENT, FLUES, AND DUCTWORK.

Q. COORDINATE SPRINKLER PIPING, EQUIPMENT, HEADS, APPURTENANCES, ETC. WITH THAT OF OTHER TRADES SO THAT SPRINKLER WORK WILL BE INSTALLED IN THE MOST DIRECT MANNER AND SO THAT INTERFERENCE BETWEEN PIPING, DUCTS, EQUIPMENT, AND ARCHITECTURAL OR STRUCTURAL FEATURES WILL BE AVOIDED. SPRINKLER PIPING, EQUIPMENT, HEADS, APPURTENANCES, ETC. INSTALLED IN AN ARBITRARY MANNER WITHOUT REGARD FOR WORK OF OTHER TRADES WILL BE REJECTED IN ANY SITUATION WHERE AN UNDESIRABLE CONDITION OR AN UNFAIR HARDSHIP FOR OTHER TRADES, OR OWNER, RESULTS.

R. SPRINKLER SHOP DRAWINGS AND HYDRAULIC CALCULATIONS BEARING THE DESIGNER'S SIGNATURE AND EITHER A PROFESSIONAL ENGINEER'S SEAL OR NICET III CERTIFICATION NUMBER SHALL BE PREPARED AND SUBMITTED TO THE FOLLOWING:

VA FIRE ENGINEER
MARTINSBURG VA FIRE CHIEF

S. COPIES OF SUBMITTAL LETTERS REQUESTING PLANS REVIEW AND APPROVAL ADDRESSED TO THE AGENCIES IDENTIFIED ABOVE SHALL BE SUBMITTED WITH SHOP DRAWINGS AND HYDRAULIC CALCULATIONS TO THE ARCHITECT. SHOP DRAWINGS WILL NOT BE REVIEWED UNTIL SUBMITTAL LETTERS HAVE BEEN RECEIVED. SUBMIT COPIES OF INSURANCE COMPANY, FIRE ENGINEER AND FIRE CHIEF'S LETTERS OF APPROVAL AND ANY ADDITIONAL REVIEW COMMENTS TO THE ARCHITECT.

Revisions:	Date

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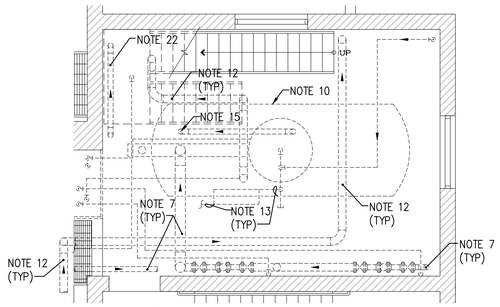
Drawing Title: FLOOR PLAN - FIRE PROTECTION	Project Title: BOILER PLANT UPGRADE PHASE V	Project Number: 613-12-501	Office of Construction and Facilities Management
Approved: Project Director	Location: VAMC MARTINSBURG, WV	Building Number: 320	Department of Veterans Affairs
	Date: 10.22.2013 / Checked / Drawn	Drawing Number: 320-F101	
		Dwg. 20 of 44	

VA FORM 08-6231

NOTES:

1. UNLESS NOTED OTHERWISE, ALL MECHANICAL ITEMS SHALL REMAIN.
2. EXISTING BOILERS, ASSOCIATED CONTROLS, VALVES, SUPPORTS, AND APPURTENANCES SHALL BE REMOVED.
3. EXISTING BOILER HOUSEKEEPING PADS SHALL BE REMOVED.
4. EXISTING HEAT EXCHANGERS, FLASH TANK, PRESSURE POWERED PUMP, STEAM CONDENSATE TRAPS, ASSOCIATED PIPING, CONTROLS, AND APPURTENANCES SHALL REMAIN.
5. EXISTING BOILER FLUE, SUPPORTS, AND APPURTENANCES SHALL BE REMOVED.
6. EXISTING FUEL OIL SUPPLY AND RETURN PIPING, HANGERS, AND APPURTENANCES SHALL BE REMOVED TO LOCATION SHOWN.
7. EXISTING STEAM PIPING, HANGERS, VALVES, PRESSURE REDUCING STATIONS, AND APPURTENANCES SHALL BE REMOVED TO LOCATION SHOWN.
8. EXISTING METERING EQUIPMENT, ORIFICE METERS, AND APPURTENANCES SHALL BE REMOVED.
9. EXISTING STEAM UNIT HEATER, STEAM CONDENSATE TRAPS, CONTROLS, SUPPORTS, AND APPURTENANCES SHALL BE REMOVED.
10. EXISTING CONDENSATE DEAERATOR TANK, ASSOCIATED CONTROLS, SUPPORTS, VALVES, AND APPURTENANCES SHALL BE REMOVED.
11. EXISTING CONDENSATE SURGE TANK, ASSOCIATED CONTROLS, SUPPORTS, TRANSFER PUMPS, VALVES, AND APPURTENANCES SHALL BE REMOVED.
12. EXISTING STEAM CONDENSATE PIPING, HANGERS, SUPPORTS, VALVES, AND APPURTENANCES SHALL BE REMOVED TO LOCATION SHOWN.
13. EXISTING DOMESTIC MAKE-UP WATER PIPING, HANGERS, AND APPURTENANCES SHALL BE REMOVED. REFER TO PLUMBING DRAWINGS FOR EXTENT OF DEMOLITION.
14. EXISTING BOILER FEEDWATER PUMPS, VARIABLE FREQUENCY DRIVES, VALVES, AND APPURTENANCES SHALL BE REMOVED.
15. EXISTING VENT PIPE, HANGERS, SUPPORTS, AND APPURTENANCES SHALL BE REMOVED.
16. EXISTING NATURAL GAS AND PROPANE PIPING, HANGERS, AND APPURTENANCES SHALL BE REMOVED TO LOCATION SHOWN.
17. REMOVE EXISTING NATURAL GAS AND PROPANE MONITORING STATIONS.
18. COORDINATE REMOVAL AND REPLACEMENT OF EXISTING PROPANE TANK WITH PROPANE GAS SUPPLIER.
19. UNLESS NOTED OTHERWISE, ALL EXISTING MISCELLANEOUS STEAM VENTS THROUGH ROOF, SUPPORTS, AND APPURTENANCES SHALL BE REMOVED.
20. REMOVE AND REINSTALL EXISTING NATURAL GAS METERING ITEMS. REFER TO SHEET MP-101 FOR CONTINUATION.
21. EXISTING STEAM SILENCER, VALVES, ASSOCIATED PIPING, AND APPURTENANCES SHALL BE REMOVED.
22. EXISTING SURGE AND DEAERATOR OVERFLOW PIPING SHALL BE REMOVED TO SANITARY CONNECTION. REFER TO PLUMPING DRAWING FOR SANITARY CONNECTION LOCATION.
23. EXISTING BOILER FEEDWATER PIPING, HANGERS, SUPPORTS, VALVES, AND APPURTENANCES SHALL BE REMOVED.
24. EXISTING CHEMICAL BARRELS, CHEMICAL PUMPS, PIPING, AND APPURTENANCES SHALL BE REMOVED.



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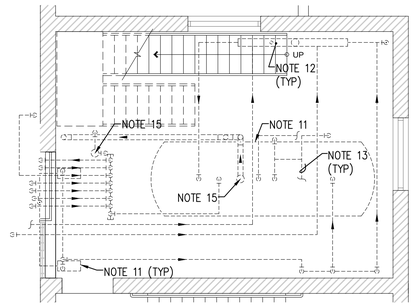
SECOND FLOOR PLAN – DEMOLITION

SCALE:1/4"=1'-0" NOTES 1,19



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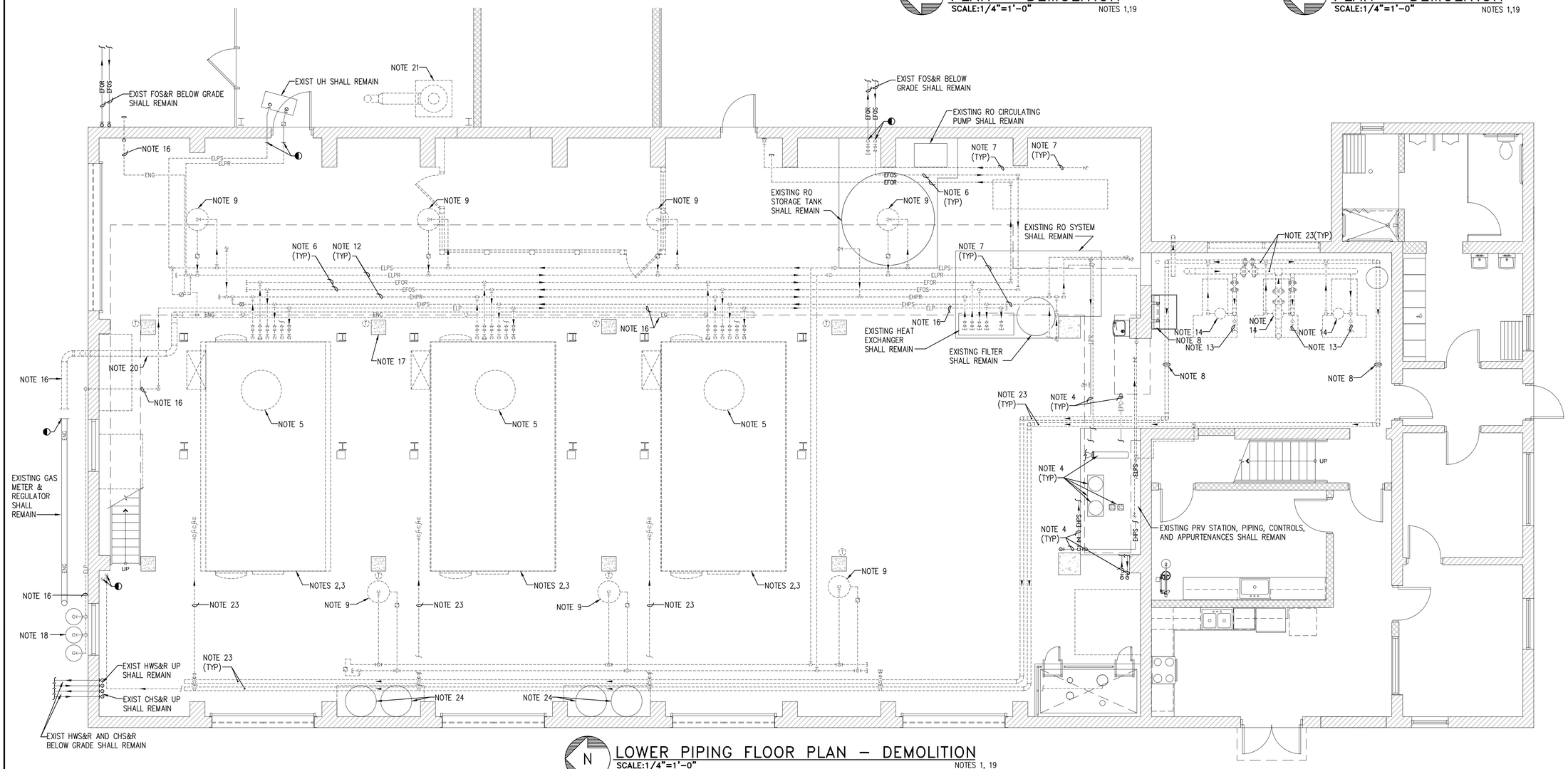
THIRD FLOOR PLAN – DEMOLITION

SCALE:1/4"=1'-0" NOTES 1,19



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LOWER PIPING FLOOR PLAN – DEMOLITION

SCALE:1/4"=1'-0" NOTES 1, 19

Revisions	Date

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Drawing Title	PIPING FLOOR PLANS - DEMOLITION
Approved: Project Director	
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Location	VAMC MARTINSBURG, WV
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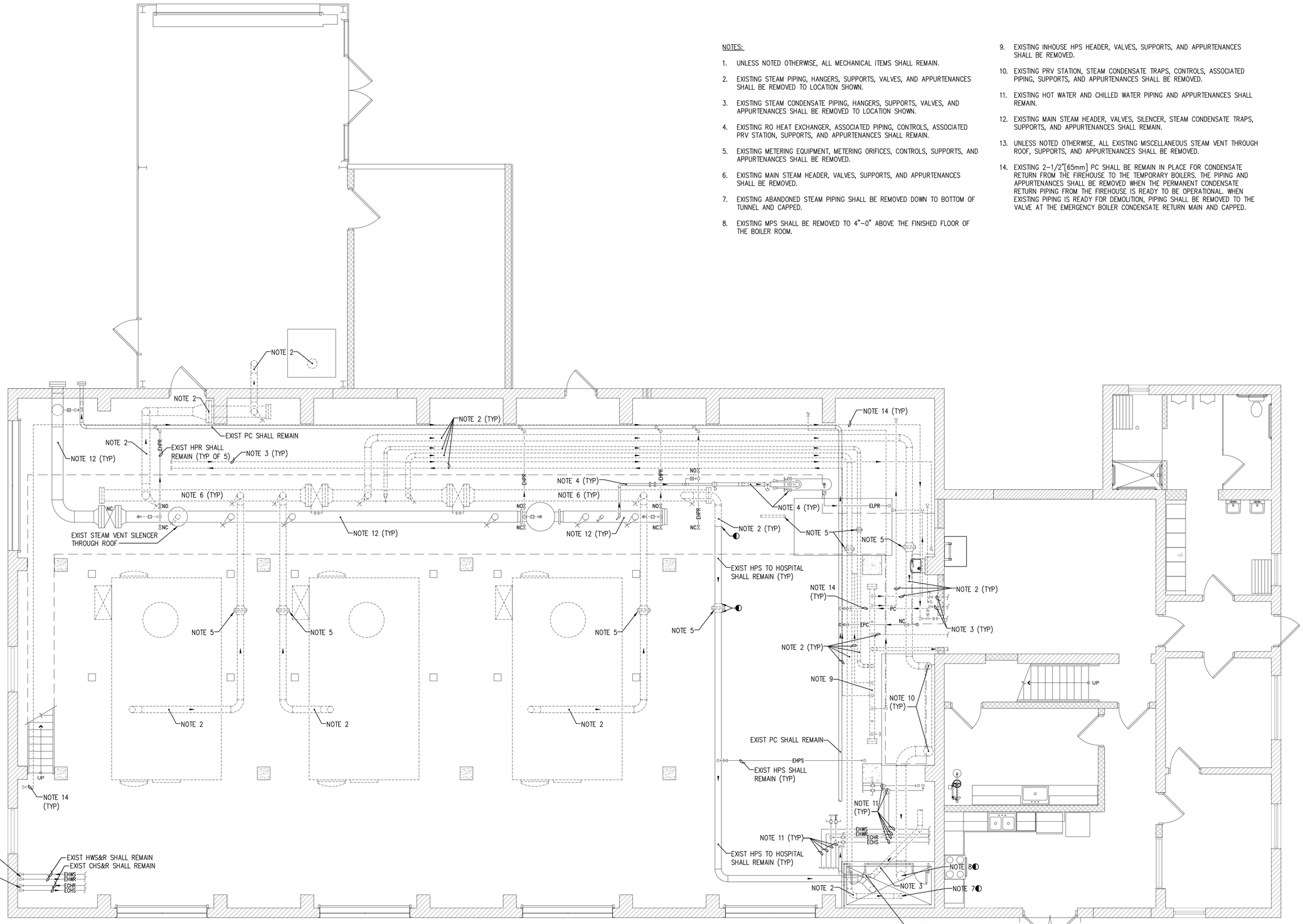
Project Number	613-12-501
Building Number	320
Drawing Number	320-MD101
	Dwg. 24 of 44

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231



NOTES:

1. UNLESS NOTED OTHERWISE, ALL MECHANICAL ITEMS SHALL REMAIN.
2. EXISTING STEAM PIPING, HANGERS, SUPPORTS, VALVES, AND APPURTENANCES SHALL BE REMOVED TO LOCATION SHOWN.
3. EXISTING STEAM CONDENSATE PIPING, HANGERS, SUPPORTS, VALVES, AND APPURTENANCES SHALL BE REMOVED TO LOCATION SHOWN.
4. EXISTING RO HEAT EXCHANGER, ASSOCIATED PIPING, CONTROLS, ASSOCIATED PRV STATION, SUPPORTS, AND APPURTENANCES SHALL REMAIN.
5. EXISTING METERING EQUIPMENT, METERING ORIFICES, CONTROLS, SUPPORTS, AND APPURTENANCES SHALL BE REMOVED.
6. EXISTING MAIN STEAM HEADER, VALVES, SUPPORTS, AND APPURTENANCES SHALL BE REMOVED.
7. EXISTING ABANDONED STEAM PIPING SHALL BE REMOVED DOWN TO BOTTOM OF TUNNEL AND CAPPED.
8. EXISTING MPS SHALL BE REMOVED TO 4"-0" ABOVE THE FINISHED FLOOR OF THE BOILER ROOM.
9. EXISTING INHOUSE HPS HEADER, VALVES, SUPPORTS, AND APPURTENANCES SHALL BE REMOVED.
10. EXISTING PRV STATION, STEAM CONDENSATE TRAPS, CONTROLS, ASSOCIATED PIPING, SUPPORTS, AND APPURTENANCES SHALL BE REMOVED.
11. EXISTING HOT WATER AND CHILLED WATER PIPING AND APPURTENANCES SHALL REMAIN.
12. EXISTING MAIN STEAM HEADER, VALVES, SILENCER, STEAM CONDENSATE TRAPS, SUPPORTS, AND APPURTENANCES SHALL REMAIN.
13. UNLESS NOTED OTHERWISE, ALL EXISTING MISCELLANEOUS STEAM VENT THROUGH ROOF, SUPPORTS, AND APPURTENANCES SHALL BE REMOVED.
14. EXISTING 2-1/2"[65mm] PC SHALL BE REMAIN IN PLACE FOR CONDENSATE RETURN FROM THE FIREHOUSE TO THE TEMPORARY BOILERS. THE PIPING AND APPURTENANCES SHALL BE REMOVED WHEN THE PERMANENT CONDENSATE RETURN PIPING FROM THE FIREHOUSE IS READY TO BE OPERATIONAL. WHEN EXISTING PIPING IS READY FOR DEMOLITION, PIPING SHALL BE REMOVED TO THE VALVE AT THE EMERGENCY BOILER CONDENSATE RETURN MAIN AND CAPPED.

UPPER PIPING FLOOR PLAN - DEMOLITION

SCALE:1/4"=1'-0"

NOTES 1,13

Revisions:	Date

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Drawing Title	UPPER PIPING FLOOR PLAN - DEMOLITION
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Project Number	613-12-501
Building Number	320
Drawing Number	320-MD102
Dwg. 25 of 44	

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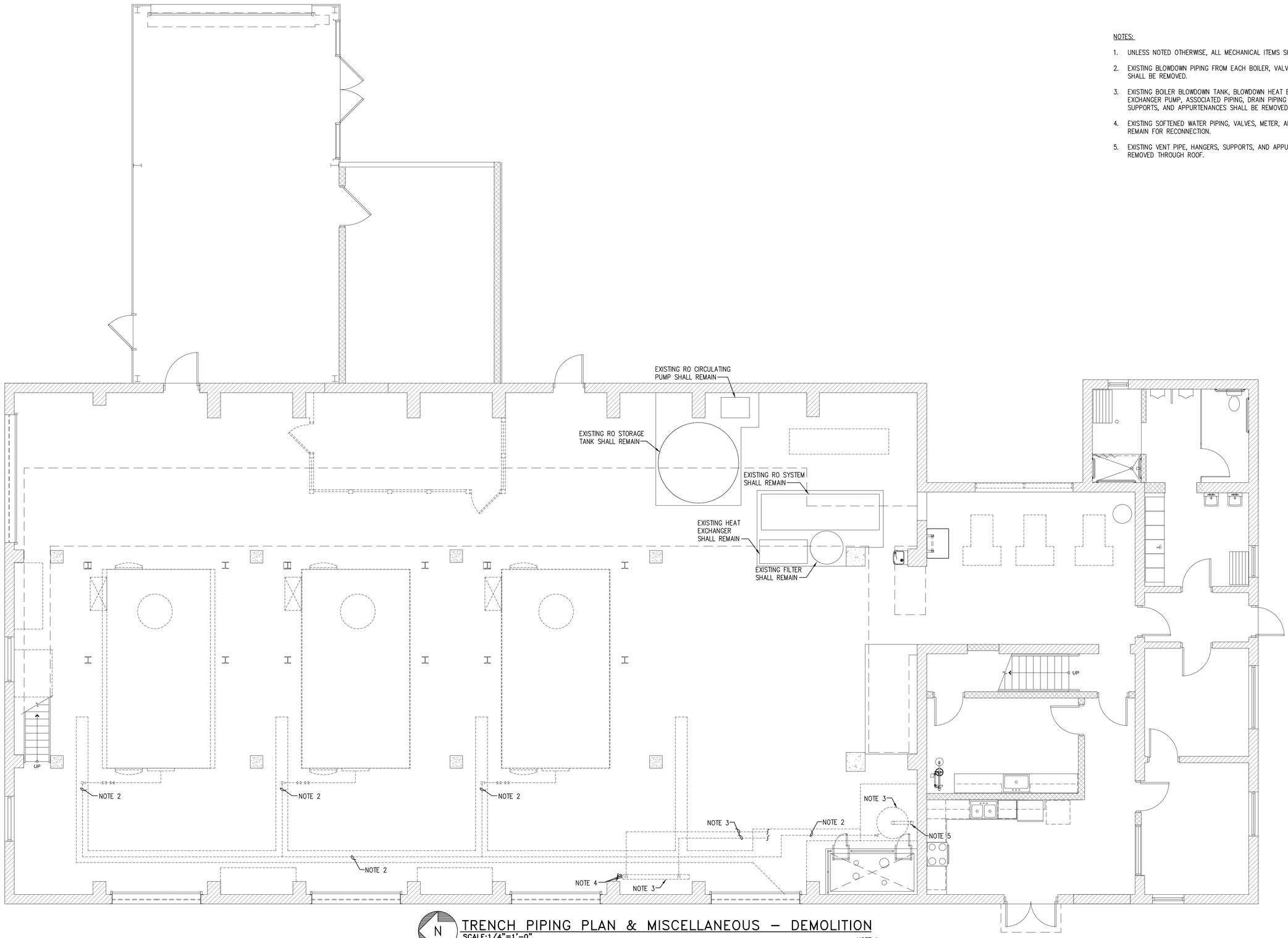
Department of Veterans Affairs

VA FORM 08-6231

NOTES:

1. UNLESS NOTED OTHERWISE, ALL MECHANICAL ITEMS SHALL REMAIN.
2. EXISTING BLOWDOWN PIPING FROM EACH BOILER, VALVES, AND APPURTENANCES SHALL BE REMOVED.
3. EXISTING BOILER BLOWDOWN TANK, BLOWDOWN HEAT EXCHANGER, BLOWDOWN HEAT EXCHANGER PUMP, ASSOCIATED PIPING, DRAIN PIPING TO SANITARY, VALVES, SUPPORTS, AND APPURTENANCES SHALL BE REMOVED.
4. EXISTING SOFTENED WATER PIPING, VALVES, METER, AND APPURTENANCES SHALL REMAIN FOR RECONNECTION.
5. EXISTING VENT PIPE, HANGERS, SUPPORTS, AND APPURTENANCES SHALL BE REMOVED THROUGH ROOF.



N

TRENCH PIPING PLAN & MISCELLANEOUS – DEMOLITION

SCALE:1/4"=1'-0"

NOTE 1

three inches = one foot
one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot

Revisions	Date

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Drawing Title	TRENCH PIPING PLAN AND MISCELLANEOUS - DEMOLITION
Approved: Project Director	

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Location	VAMC MARTINSBURG, WV	
Date	10.22.2013	Checked / Drawn

Project Number	613-12-501
Building Number	320
Drawing Number	320-MD103
	Dwg. 26 of 44

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

PIPING SYMBOLS

HPS	HIGH PRESSURE STEAM (60 PSIG AND ABOVE)
HPR	HIGH PRESSURE STEAM CONDENSATE RETURN
MPS	MEDIUM PRESSURE STEAM (16 PSIG THRU 59 PSIG)
MPR	MEDIUM PRESSURE STEAM CONDENSATE RETURN
LPS	LOW PRESSURE STEAM (15 PSIG AND BELOW)
LPR	LOW PRESSURE STEAM CONDENSATE RETURN
HWS	HOT WATER HEATING SUPPLY
HWR	HOT WATER HEATING RETURN
CHS	CHILLED WATER SUPPLY
CHR	CHILLED WATER RETURN
PC	CONDENSATE PUMP DISCHARGE
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
MW	MAKE-UP WATER
D	DRAIN LINE
V	VENT LINE
FWPD	FEEDWATER PUMP DISCHARGE
FWPS	FEEDWATER PUMP SUCTION
CTPD	CONDENSATE TRANSFER PUMP DISCHARGE
CTPS	CONDENSATE TRANSFER PUMP SUCTION
BO	BOILER BLOWOFF
CBD	CONTINUOUS BLOWDOWN
BWS	BOILER WATER SAMPLE
FWS	FEEDWATER SAMPLE (FROM DEAERATOR)
CF	CHEMICAL FEED
OFL	OVERFLOW
G	NATURAL GAS MAIN FUEL
G(I)	NATURAL GAS IGNITER FUEL
LPG(I)	LIQUEFIED PETROLEUM GAS IGNITER FUEL
FOS	FUEL OIL SUPPLY
FOR	FUEL OIL RETURN
SW	SOFTENED WATER
X	EXISTING PIPE TO BE REMOVED
RH	ROLLER-TYPE HANGER
SH	VARIABLE SPRING-TYPE HANGER (TYPE 51)*
SCH	SPRING CUSHION-TYPE HANGER (TYPE 48 OR 49)*
	CLEVIS-TYPE HANGER
PS	FLOOR-SUPPORTED PIPE STAND
RC	RISER CLAMP (TYPE 42)*
WB	WALL BRACKET (TYPE 31, 32, 33)*
CSH	CONSTANT SUPPORT HANGER (TYPE 54, 55, 56)*
SS	SLIDING SUPPORTS (TYPE 35)*
TH	TRAPEZE HANGER (PROVIDE U-BOLT PIPE ATTACHMENT TO TRAPEZE EXCEPT WHERE RH ARE INDICATED)

* TYPE NUMBERS REFER TO MANUFACTURER'S STANDARDIZATION SOCIETY STANDARD PRACTICE SP-58

VALVE SYMBOLS

- GATE VALVE - THREADED/FLANGED
- GLOBE VALVE - THREADED/FLANGED
- GATE VALVE WITH 3/4" HOSE ADAPTER
- CHECK VALVE
- WYE STRAINER (WITH BALL VALVE & HOSE CONNECTION)
- WYE STRAINER WITH VALVED DRAIN AND QUICK-COUPLE HOSE CONNECTOR
- FLEXIBLE CONNECTION
- ANGLE GLOBE VALVE
- BUTTERFLY VALVE
- BALL VALVE
- MODULATING CONTROL VALVE
- MODULATING CONTROL BUTTERFLY VALVE
- TWO POSITION CONTROL VALVE
- THREE-WAY MODULATING CONTROL VALVE
- THREE-WAY TWO POSITION CONTROL VALVE
- PRESSURE REGULATING VALVE
- PRESSURE SAFETY VALVE
- AUTOMATIC BALANCING CONTROL VALVE
- WATER BALANCE DEVICE
- CIRCUIT SETTER VALVE
- GATE VALVE WITH GLOBE-VALVED BYPASS
- PLUG VALVE
- CONTROL VALVE (CV) - FLOAT-OPERATED
- PRESSURE REDUCING VALVE (PRV)
- WATER LEVEL CONTROLLER (LC)
- FLOW METER (M)

GENERAL PIPING SYMBOLS

- DIRECTION OF PIPE PITCH (DOWN)
- DIRECTION OF FLOW
- ANCHOR
- REDUCER OR INCREASER
- ECCENTRIC REDUCER
- TOP CONNECTION, 45° OR 90°
- BOTTOM CONNECTION, 45° OR 90°
- SIDE CONNECTION
- CAPPED OUTLET
- RISE OR DROP IN PIPE
- UNION
- PIPE UP
- PIPE DOWN
- INVERTED BUCKET TRAP SET INCLUDING PIPING ACCESSORIES SEE DETAIL
- FLOAT & THERMOSTATIC TRAP SET INCLUDING PIPING ACCESSORIES SEE DETAIL
- THERMOMETER
- PRESSURE GAGE
- FLOW ELEMENT (FE)
- REFRIGERANT SIGHT GLASS
- TEST PLUG (PRESSURE/TEMPERATURE)
- AUTOMATIC AIR VENT (AV)
- MANUAL AIR VENT (MV)
- QUICK-COUPLE HOSE CONNECTOR
- CONNECT NEW DUCT TO EXISTING DUCT
- LIMIT OF DEMOLITION

DUCTWORK SYMBOLS

- UP / DN — SUPPLY DUCT (UP & DOWN)
- VANED ELBOW (PROVIDE ALL SQUARE OR RECTANGULAR ELBOWS WITH VANES EVEN IF SYMBOL IS MISSING)
- 10x8 — NEW DUCT (INSIDE DIMENSIONS: WIDTH x DEPTH)
- VD — MANUAL VOLUME DAMPER
- BDD — BACK DRAFT DAMPER
- AUTOMATIC CONTROL DAMPER TWO POSITION
- DUCT MOUNTED COIL (STEAM COIL)

DRAWING SYMBOLS

- 2 / H4 — DETAIL NUMBER / DRAWING NUMBER WHERE DRAWN
- A / H7 — SECTION LETTER / DRAWING NUMBER WHERE SHOWN
- 26-SF 3 — BUILDING NO. WHERE EQUIPMENT IS LOCATED. / EQUIPMENT ABBREVIATION (SUPPLY FAN) / SUPPLY FAN NO. 3 IN BUILDING NO. 26 / TYPICAL UNIT NO.

ABBREVIATIONS

A/E	ARCHITECT / ENGINEER
AAV	AUTOMATIC AIR VENT
ACCU	AIR-COOLED CONDENSING UNIT
ACU	AIR CONDITIONING UNIT
ACD	AUTOMATIC CONTROL DAMPER,MODULATING
ACD-TP	AUTOMATIC CONTROL DAMPER,TWO POSITION
AFCV	AIR FLOW CONTROL VALVE
AFF	ABOVE FINISHED FLOOR
AFMD	AIR FLOW MEASURING DEVICE
APD	AIR PRESSURE DROP
ARI	AIR CONDITIONING AND REFRIGERATION INSTITUTE
AS	AIR SEPARATOR
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
B	BOILER
BD	BUTTERFLY DAMPER
BDD	BACKDRAFT DAMPER
BFP	BACKFLOW PREVENTER
BFT	BOILER PLANT FIRE TUBE
BHP	BRAKE HORSEPOWER
BHX	BOILER BLOWDOWN HEAT EXCHANGER
BT	BLOWOFF TANK
BTC	BLOWOFF TANK CONTROL VALVE
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BWT	BOILER PLANT WATER TUBE
C	CENTIGRADE (CELCIUS)
CD-1	CONSTRUCTION DOCUMENTS (SUBMISSION1)
CD-2	CONSTRUCTION DOCUMENTS (SUBMISSION2)
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CFT	CUBIC FEET
CFP	CHEMICAL FEED PUMP
CI	CAST IRON
CM	CARBON MONOXIDE
CM	CUBIC METER
CM/S	CUBIC METER PER SECOND
CO	CLEAN OUT
CO2	CARBON DIOXODE
COMP	COMPRESSOR UNIT
COP	COEFFICIENT OF PERFORMANCE
CP	CONDENSATE PUMP
CS	CONDENSATE STORAGE TANK
CU	CONDENSING UNIT
CV	CONSTANT VOLUME
D	DAMPER - AUTOMATIC
D-1	OUTDOOR AIR DAMPER
D-2	RETURN AIR DAMPER
DB	DECIBELS
Db	DRY-BULB TEMPERATURE
DD-1	DESIGN DEVELOPMENT (SUBMISSION1)
DD-2	DESIGN DEVELOPMENT (SUBMISSION2)
DDC	DIRECT DIGITAL CONTROLS
DEG	DEGREE
DIA	DIAMETER
DIW	DEIONIZED WATER
DP	DIFFUSER PLATE
DPA	DIFFERENTIAL PRESSURE ASSEMBLY
DPS	DIFFERENTIAL PRESSURE SENSOR
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
ECC	ENGINEERING CONTROL CENTER
EER	ENERGY EFFICIENCY RATIO
EGS	EMERGENCY GAS SHUTOFF
EMD	END OF MAIN DRIP (STEAM)
ENT	ENTERING
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EWT	ENTERING WATER TEMPERATURE
EX.	EXISTING
F	FAHRENHEIT
F&T	FLOAT AND THERMOSTATIC
FA	FREE AREA
FC	FLEXIBLE CONNECTION
FD	FLOOR DRAIN
FD	FIRE DAMPER
FHX	FLUE GAS/FEEDWATER HEAT EXCHANGER
FM	FLOW METER
FOP	FUEL OIL PUMP
FOHX	FUEL OIL HEAT EXCHANGER
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FS	FLOW SWITCH
FT	FEET
FT-LB	FOOT-POUND
FV	FACE VELOCITY
GA	GAUGE
GAL	GALLONS
GH	GRAVITY HOOD
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPR	GAS PRESSURE REGULATOR
GS	GALVANIZED STEEL
HB	HOSE BIBB
HC	HEATING COIL
HD	HEAD
HD	HOOD
HOA	HAND/OFF/AUTOMATIC
HP	HEAT PUMP
HP	HORSEPOWER
HPDT	HIGH PRESSURE DRIP TRAP
HPR	HIGH PRESSURE RETURN (STEAM CONDENSATE)
HPS	HIGH PRESSURE SUPPLY (STEAM)
HRC	HEAT RECOVERY COIL
HSTAT	HUMIDISTAT
HX	HEAT EXCHANGER
HZ	HERTZ
I/O	INPUT/OUTPUT
IBT	INVERTED BUCKET TRAP
ID	INSIDE DIAMETER
IN	INCHES
IN HG	INCHES OF MERCURY
IN WC	INCH WATER COLUMN
IN WG	INCH WATER GAUGE
IN-LB	INCH-POUND
IPLV	INTERGRATED PART LOAD VALUE
L	LITER
L/h	LITERS PER HOUR (OR LITERS/HOUR)
L/m	LITERS PER MINUTE (OR LITERS/MINUTE)
L/s	LITERS PER SECOND (OR LITERS/SECOND)
LAT	LEAVING AIR TEMPERATURE
LBS/HR	POUNDS PER HOUR
LF	LINEAR FOOT (FEET)
LH	LATENT HEAT
LPG	LIQUID PROPANE GAS
LPR	LOW PRESSURE RETURN (STEAM CONDENSATE)
LPRC	LOW PRESSURE STEAM RETURN (CLEAN)
LLHX	LIQUID TO LIQUID HEAT EXCHANGER
LPS	LOW PRESSURE STEAM
LTCP	LOCAL TEMPERATURE CONTROL PANEL
LVG	LEAVING
LVR	LOUVER
LWT	LEAVING WATER TEMPERATURE
kg	KILOGRAM
kg/HR	KILOGRAM PER HOUR
kPa	KILOPASCAL
kW	KILOWATT
kWh	KILOWATT HOUR
M	METER, SI UNIT
M/s	METERS PER SECOND (OR METERS/SECOND)
MA	MIXED AIR
MAT	MIXED AIR TEMPERATURE
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MBH	1000 BTUH
MCA	MINIMUM BRANCH CIRCUIT AMPACITY
MER	MECHANICAL EQUIPMENT ROOM
MH	MANHOLE
MHP	MOTOR HORSEPOWER
MIN	MINIMUM
MM	MILLIMETER
MOV	MOTOR OPERATED VALVE
MPR	MEDIUM PRESSURE RETURN (STEAM CONDENSATE)
MPS	MEDIUM PRESSURE STEAM
MTD	MEAN TEMPERATURE DIFFERENCE
NA	NOT APPLICABLE
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NG	NATURAL GAS
NGFM	NATURAL GAS FLOWMETER
NO	NORMALLY OPEN
NOAA	NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION
NOM	NOMINAL
NPLV	NON-STANDARD PART LOAD VALUE
NPSH	NET POSITIVE SUCTION HEAD
NTS	NOT TO SCALE
P	PUMP
PA	PASCAL
PC	PUMPED CONDENSATE
PCF	POUNDS PER CUBIC FOOT (FEET)
PD	PRESSURE DROP
PG	PRESSURE GAGE
PPM	PARTS PER MILLION
PRS	PRESSURE REGULATING (VALVE) STATION
PRV	PRESSURE REGULATING VALVE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH - ABSOLUTE
PSIG	POUNDS PER SQUARE INCH - GAGE
PSV	PRESSURE SAFETY VALVE
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
OD	OUTSIDE DIAMETER
OFM	OIL FLOWMETER
RA	RETURN AIR
RAT	RETURN AIR TEMPERATURE
REA	RELIEF AIR
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID LINE
RLA	RUN LOAD AMPERE
RO	REVERSE OSMOSIS
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
RV	RELIEF VALVE
SAD	SOUND ATTENUATING DEVICE
SCFM	STANDARD CUBIC FEET PER MINUTE
SD	SMOKE DETECTOR
SD-1	SCHEMATIC DESIGN (SUBMISSION1)
SD-2	SCHEMATIC DESIGN (SUBMISSION2)
SEN	SENSIBLE HEAT
SHC	STEAM HEATING COIL
SI	SQUARE INCHES
SP	STATIC PRESSURE
SP GR	SPECIFIC GRAVITY
SPRV	STEAM PRESSURE REDUCING VALVE
SPS	STATIC PRESSURE SENSOR
SQ FT	SQUARE FOOT (FEET)
SS	STAINLESS STEEL
SSHX	STEAM TO STEAM HEAT EXCHANGER
SSR	SOLID SEPARATOR
ST	STEAM TRAP
SUH	STEAM UNIT HEATER
SV	STEAM PRESSURE REDUCING VALVE
SVS	STEAM VENT SILENCER
SWHX	STEAM TO WATER HEAT EXCHANGER
T&PCV	TEMPERATURE AND PRESSURE CONTROL VALVE
TAB	TESTING, ADJUSTING, BALANCE
TD	TEMPERATURE DIFFERENCE
TDH	TOTAL DYNAMIC HEAD
TDS	TOTAL DISSOLVED SOLIDS
TP	TRAP
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
TU	TERMINAL UNIT
UC	UNDER CUT
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORY
V	VALVE
VFD	VARIABLE FREQUENCY DRIVE
VHA	VETERANS HEALTH ADMINISTRATION
VI	VIBRATION ISOLATOR
VSD	VARIABLE SPEED DRIVE
W	WATTS
Wb	WET-BULB (TEMPERATURE)
WF	WATER FILTER
WFCV	WATER FLOW CONTROL VALVE
WFM	WATER FLOWMETER
WFMD	WATER FLOW MEASURING DEVICE
WG	WATER GAGE
WPD	WATER SIDE PRESSURE DROP
YR	YEAR

Revisions	Date

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Drawing Title: SYMBOLS AND ABBREVIATIONS - MECHANICAL

Approved: Project Director

Project Title: BOILER PLANT UPGRADE PHASE V

Location: VAMC MARTINSBURG, WV

Date: 10.22.2013 | Checked | Drawn

Project Number: 613-12-501

Building Number: 320

Drawing Number: 320-MP001

Dwg. 27 of 44

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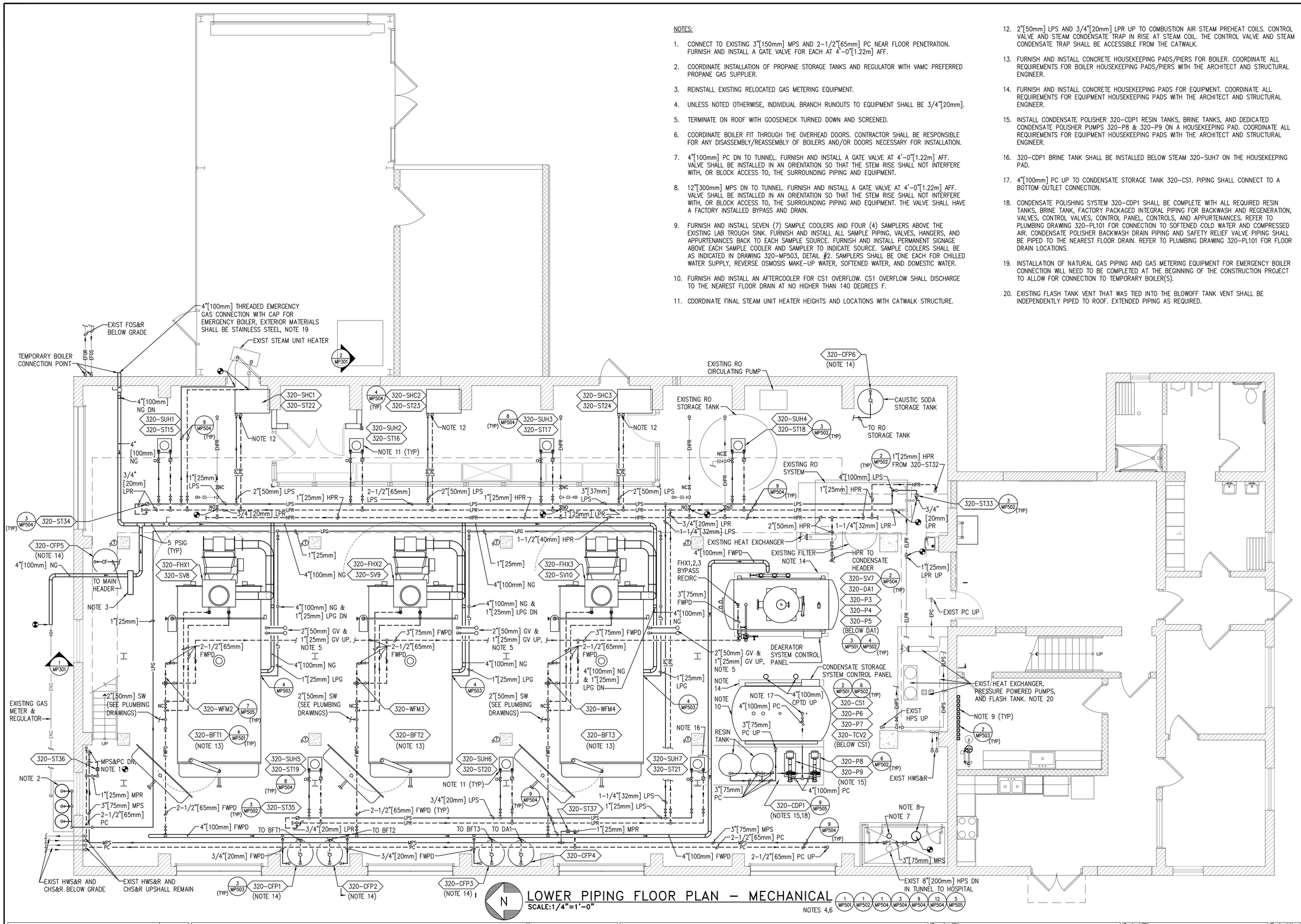

NOTES:

1. CONNECT TO EXISTING 3"[150mm] MPS AND 2-1/2"[65mm] PC NEAR FLOOR PENETRATION. FURNISH AND INSTALL A GATE VALVE FOR EACH AT 4'-0"[1.22m] AFF.
2. COORDINATE INSTALLATION OF PROPANE STORAGE TANKS AND REGULATOR WITH VAMC PREFERRED PROPANE GAS SUPPLIER.
3. REINSTALL EXISTING RELOCATED GAS METERING EQUIPMENT.
4. UNLESS NOTED OTHERWISE, INDIVIDUAL BRANCH RUNOUTS TO EQUIPMENT SHALL BE 3/4"[20mm].
5. TERMINATE ON ROOF WITH GOOSENECK TURNED DOWN AND SCREENED.
6. COORDINATE BOILER FIT THROUGH THE OVERHEAD DOORS. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DISASSEMBLY/REASSEMBLY OF BOILERS AND/OR DOORS NECESSARY FOR INSTALLATION.
7. 4"[100mm] PC DN TO TUNNEL. FURNISH AND INSTALL A GATE VALVE AT 4'-0"[1.22m] AFF. VALVE SHALL BE INSTALLED IN AN ORIENTATION SO THAT THE STEM RISE SHALL NOT INTERFERE WITH, OR BLOCK ACCESS TO, THE SURROUNDING PIPING AND EQUIPMENT.
8. 12"[300mm] MPS DN TO TUNNEL. FURNISH AND INSTALL A GATE VALVE AT 4'-0"[1.22m] AFF. VALVE SHALL BE INSTALLED IN AN ORIENTATION SO THAT THE STEM RISE SHALL NOT INTERFERE WITH, OR BLOCK ACCESS TO, THE SURROUNDING PIPING AND EQUIPMENT. THE VALVE SHALL HAVE A FACTORY INSTALLED BYPASS AND DRAIN.
9. FURNISH AND INSTALL SEVEN (7) SAMPLE COOLERS AND FOUR (4) SAMPLERS ABOVE THE EXISTING LAB TROUGH SINK. FURNISH AND INSTALL ALL SAMPLE PIPING, VALVES, HANGERS, AND APPURTENANCES BACK TO EACH SAMPLE SOURCE. FURNISH AND INSTALL PERMANENT SIGNAGE ABOVE EACH SAMPLE COOLER AND SAMPLER TO INDICATE SOURCE. SAMPLE COOLERS SHALL BE AS INDICATED IN DRAWING 320-MP503, DETAIL #2. SAMPLERS SHALL BE ONE EACH FOR CHILLED WATER SUPPLY, REVERSE OSMOSIS MAKE-UP WATER, SOFTENED WATER, AND DOMESTIC WATER.
10. FURNISH AND INSTALL AN AFTERCOOLER FOR CS1 OVERFLOW. CS1 OVERFLOW SHALL DISCHARGE TO THE NEAREST FLOOR DRAIN AT NO HIGHER THAN 140 DEGREES F.
11. COORDINATE FINAL STEAM UNIT HEATER HEIGHTS AND LOCATIONS WITH CATWALK STRUCTURE.
12. 2"[50mm] LPS AND 3/4"[20mm] LPR UP TO COMBUSTION AIR STEAM PREHEAT COILS. CONTROL VALVE AND STEAM CONDENSATE TRAP IN RISE AT STEAM COIL. THE CONTROL VALVE AND STEAM CONDENSATE TRAP SHALL BE ACCESSIBLE FROM THE CATWALK.
13. FURNISH AND INSTALL CONCRETE HOUSEKEEPING PADS/PIERS FOR BOILER. COORDINATE ALL REQUIREMENTS FOR BOILER HOUSEKEEPING PADS/PIERS WITH THE ARCHITECT AND STRUCTURAL ENGINEER.
14. FURNISH AND INSTALL CONCRETE HOUSEKEEPING PADS FOR EQUIPMENT. COORDINATE ALL REQUIREMENTS FOR EQUIPMENT HOUSEKEEPING PADS WITH THE ARCHITECT AND STRUCTURAL ENGINEER.
15. INSTALL CONDENSATE POLISHER 320-CDP1 RESIN TANKS, BRINE TANKS, AND DEDICATED CONDENSATE POLISHER PUMPS 320-P8 & 320-P9 ON A HOUSEKEEPING PAD. COORDINATE ALL REQUIREMENTS FOR EQUIPMENT HOUSEKEEPING PADS WITH THE ARCHITECT AND STRUCTURAL ENGINEER.
16. 320-CDP1 BRINE TANK SHALL BE INSTALLED BELOW STEAM 320-SUH7 ON THE HOUSEKEEPING PAD.
17. 4"[100mm] PC UP TO CONDENSATE STORAGE TANK 320-CS1. PIPING SHALL CONNECT TO A BOTTOM OUTLET CONNECTION.
18. CONDENSATE POLISHING SYSTEM 320-CDP1 SHALL BE COMPLETE WITH ALL REQUIRED RESIN TANKS, BRINE TANK, FACTORY PACKAGED INTEGRAL PIPING FOR BACKWASH AND REGENERATION, VALVES, CONTROL VALVES, CONTROL PANEL, CONTROLS, AND APPURTENANCES. REFER TO PLUMBING DRAWING 320-PL101 FOR CONNECTION TO SOFTENED COLD WATER AND COMPRESSED AIR. CONDENSATE POLISHER BACKWASH DRAIN PIPING AND SAFETY RELIEF VALVE PIPING SHALL BE PIPED TO THE NEAREST FLOOR DRAIN. REFER TO PLUMBING DRAWING 320-PL101 FOR FLOOR DRAIN LOCATIONS.
19. INSTALLATION OF NATURAL GAS PIPING AND GAS METERING EQUIPMENT FOR EMERGENCY BOILER CONNECTION WILL NEED TO BE COMPLETED AT THE BEGINNING OF THE CONSTRUCTION PROJECT TO ALLOW FOR CONNECTION TO TEMPORARY BOILER(S).
20. EXISTING FLASH TANK VENT THAT WAS TIED INTO THE BLOWOFF TANK VENT SHALL BE INDEPENDENTLY PIPED TO ROOF. EXTENDED PIPING AS REQUIRED.

LOWER PIPING FLOOR PLAN – MECHANICAL

SCALE: 1/4"=1'-0"

Revisions	Date

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Drawing Title: LOWER PIPING FLOOR PLAN - MECHANICAL

Approved: Project Director:

Project Title: BOILER PLANT UPGRADE PHASE V

Location: VAMC MARTINSBURG, WV

Date: 10.22.2013 | **Checked:** | **Drawn:**

Project Number: 613-12-501

Building Number: 320

Drawing Number: 320-MP101

Dwg. 28 of 44

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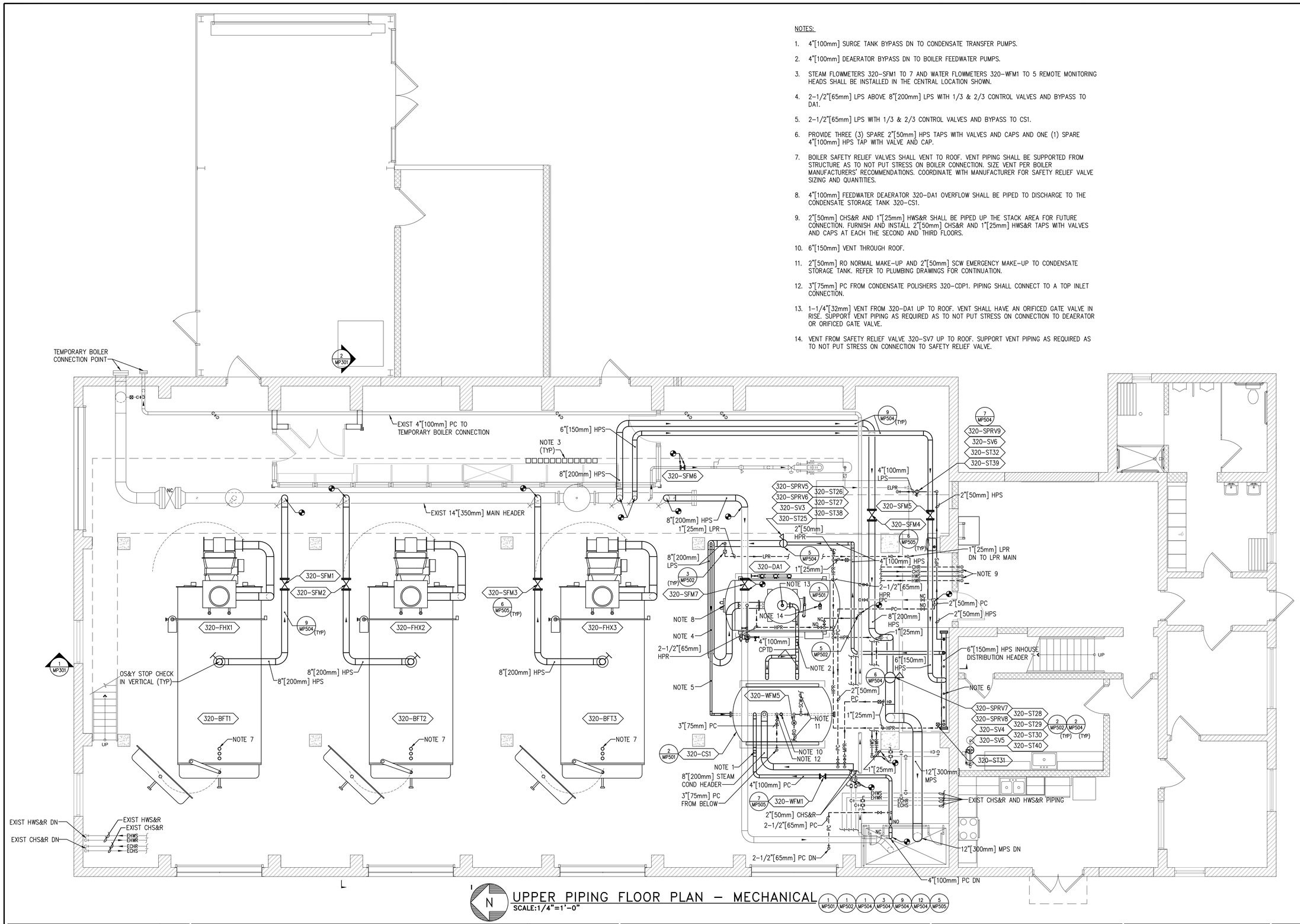
NOTES:

1. 4"[100mm] SURGE TANK BYPASS DN TO CONDENSATE TRANSFER PUMPS.
2. 4"[100mm] DEAERATOR BYPASS DN TO BOILER FEEDWATER PUMPS.
3. STEAM FLOWMETERS 320-SFM1 TO 7 AND WATER FLOWMETERS 320-WFM1 TO 5 REMOTE MONITORING HEADS SHALL BE INSTALLED IN THE CENTRAL LOCATION SHOWN.
4. 2-1/2"[65mm] LPS ABOVE 8"[200mm] LPS WITH 1/3 & 2/3 CONTROL VALVES AND BYPASS TO DA1.
5. 2-1/2"[65mm] LPS WITH 1/3 & 2/3 CONTROL VALVES AND BYPASS TO CS1.
6. PROVIDE THREE (3) SPARE 2"[50mm] HPS TAPS WITH VALVES AND CAPS AND ONE (1) SPARE 4"[100mm] HPS TAP WITH VALVE AND CAP.
7. BOILER SAFETY RELIEF VALVES SHALL VENT TO ROOF. VENT PIPING SHALL BE SUPPORTED FROM STRUCTURE AS TO NOT PUT STRESS ON BOILER CONNECTION. SIZE VENT PER BOILER MANUFACTURERS' RECOMMENDATIONS. COORDINATE WITH MANUFACTURER FOR SAFETY RELIEF VALVE SIZING AND QUANTITIES.
8. 4"[100mm] FEEDWATER DEAERATOR 320-DA1 OVERFLOW SHALL BE PIPED TO DISCHARGE TO THE CONDENSATE STORAGE TANK 320-CS1.
9. 2"[50mm] CHS&R AND 1"[25mm] HWS&R SHALL BE PIPED UP THE STACK AREA FOR FUTURE CONNECTION. FURNISH AND INSTALL 2"[50mm] CHS&R AND 1"[25mm] HWS&R TAPS WITH VALVES AND CAPS AT EACH THE SECOND AND THIRD FLOORS.
10. 6"[150mm] VENT THROUGH ROOF.
11. 2"[50mm] RO NORMAL MAKE-UP AND 2"[50mm] SCW EMERGENCY MAKE-UP TO CONDENSATE STORAGE TANK. REFER TO PLUMBING DRAWINGS FOR CONTINUATION.
12. 3"[75mm] PC FROM CONDENSATE POLISHERS 320-CDP1. PIPING SHALL CONNECT TO A TOP INLET CONNECTION.
13. 1-1/4"[32mm] VENT FROM 320-DA1 UP TO ROOF. VENT SHALL HAVE AN ORIFICED GATE VALVE IN RISE. SUPPORT VENT PIPING AS REQUIRED AS TO NOT PUT STRESS ON CONNECTION TO DEAERATOR OR ORIFICED GATE VALVE.
14. VENT FROM SAFETY RELIEF VALVE 320-SV7 UP TO ROOF. SUPPORT VENT PIPING AS REQUIRED AS TO NOT PUT STRESS ON CONNECTION TO SAFETY RELIEF VALVE.



UPPER PIPING FLOOR PLAN – MECHANICAL

SCALE: 1/4"=1'-0"

1 MP501	1 MP502	1 MP504	3 MP504	9 MP504	12 MP504	5 MP505

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Drawing Title: UPPER PIPING FLOOR PLAN - MECHANICAL	Project Title: BOILER PLANT UPGRADE PHASE V
Approved: Project Director	Location: VAMC MARTINSBURG, WV
	Date: 10.22.2013 / Checked / Drawn
Project Number: 613-12-501	
Building Number: 320	
Drawing Number: 320-MP102	Dwg. 29 of 44

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Department of Veterans Affairs

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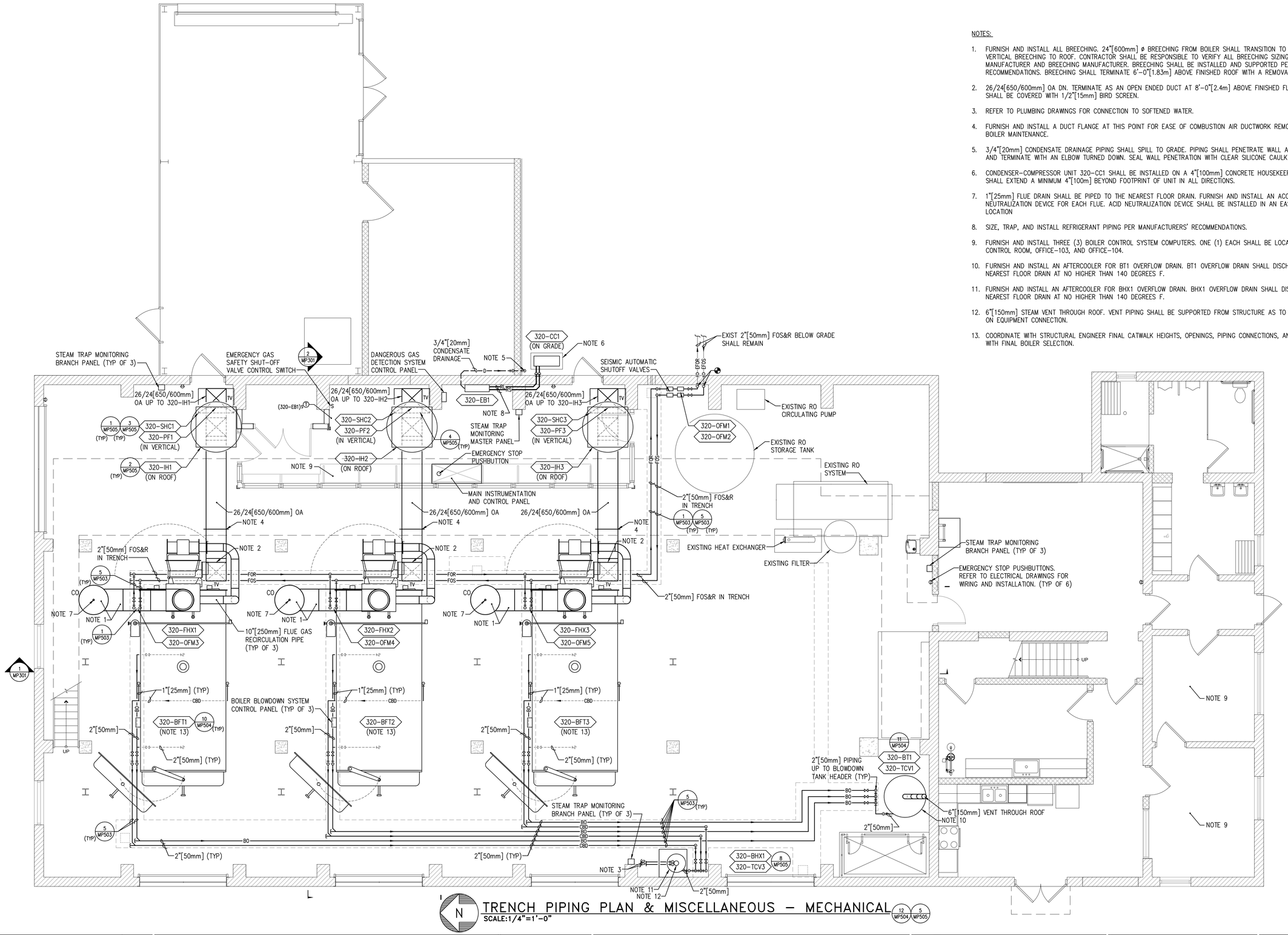

TRENCH PIPING PLAN & MISCELLANEOUS – MECHANICAL

SCALE: 1/4"=1'-0"

NOTES:

1. FURNISH AND INSTALL ALL BREECHING. 24"[600mm] ø BREECHING FROM BOILER SHALL TRANSITION TO 34"[850mm] ø VERTICAL BREECHING TO ROOF. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL BREECHING SIZING WITH BOILER MANUFACTURER AND BREECHING MANUFACTURER. BREECHING SHALL BE INSTALLED AND SUPPORTED PER MANUFACTURERS' RECOMMENDATIONS. BREECHING SHALL TERMINATE 6'-0"[1.83m] ABOVE FINISHED ROOF WITH A REMOVABLE RAIN CAP.
2. 26/24[650/600mm] OA DN. TERMINATE AS AN OPEN ENDED DUCT AT 8'-0"[2.4m] ABOVE FINISHED FLOOR. DUCT END SHALL BE COVERED WITH 1/2"[15mm] BIRD SCREEN.
3. REFER TO PLUMBING DRAWINGS FOR CONNECTION TO SOFTENED WATER.
4. FURNISH AND INSTALL A DUCT FLANGE AT THIS POINT FOR EASE OF COMBUSTION AIR DUCTWORK REMOVAL DURING BOILER MAINTENANCE.
5. 3/4"[20mm] CONDENSATE DRAINAGE PIPING SHALL SPILL TO GRADE. PIPING SHALL PENETRATE WALL AT 12"[300mm] AFG AND TERMINATE WITH AN ELBOW TURNED DOWN. SEAL WALL PENETRATION WITH CLEAR SILICONE CAULK.
6. CONDENSER-COMPRESSOR UNIT 320-CC1 SHALL BE INSTALLED ON A 4"[100mm] CONCRETE HOUSEKEEPING PAD. PAD SHALL EXTEND A MINIMUM 4"[100m] BEYOND FOOTPRINT OF UNIT IN ALL DIRECTIONS.
7. 1"[25mm] FLUE DRAIN SHALL BE PIPED TO THE NEAREST FLOOR DRAIN. FURNISH AND INSTALL AN ACCESSORY ACID NEUTRALIZATION DEVICE FOR EACH FLUE. ACID NEUTRALIZATION DEVICE SHALL BE INSTALLED IN AN EASILY ACCESSIBLE LOCATION
8. SIZE, TRAP, AND INSTALL REFRIGERANT PIPING PER MANUFACTURERS' RECOMMENDATIONS.
9. FURNISH AND INSTALL THREE (3) BOILER CONTROL SYSTEM COMPUTERS. ONE (1) EACH SHALL BE LOCATED IN THE BOILER CONTROL ROOM, OFFICE-103, AND OFFICE-104.
10. FURNISH AND INSTALL AN AFTERCOOLER FOR BT1 OVERFLOW DRAIN. BT1 OVERFLOW DRAIN SHALL DISCHARGE TO THE NEAREST FLOOR DRAIN AT NO HIGHER THAN 140 DEGREES F.
11. FURNISH AND INSTALL AN AFTERCOOLER FOR BHX1 OVERFLOW DRAIN. BHX1 OVERFLOW DRAIN SHALL DISCHARGE TO THE NEAREST FLOOR DRAIN AT NO HIGHER THAN 140 DEGREES F.
12. 6"[150mm] STEAM VENT THROUGH ROOF. VENT PIPING SHALL BE SUPPORTED FROM STRUCTURE AS TO NOT PUT STRESS ON EQUIPMENT CONNECTION.
13. COORDINATE WITH STRUCTURAL ENGINEER FINAL CATWALK HEIGHTS, OPENINGS, PIPING CONNECTIONS, AND REQUIREMENTS WITH FINAL BOILER SELECTION.

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Drawing Title: TRENCH PIPING PLAN AND MISCELLANEOUS - MECHANICAL	Project Title: BOILER PLANT UPGRADE PHASE V
Approved: Project Director	Location: VAMC MARTINSBURG, WV
	Date: 10.22.2013
	Checked:
	Drawn:
	Project Number: 613-12-501
	Building Number: 320
	Drawing Number: 320-MP103
	Dwg. 30 of 44

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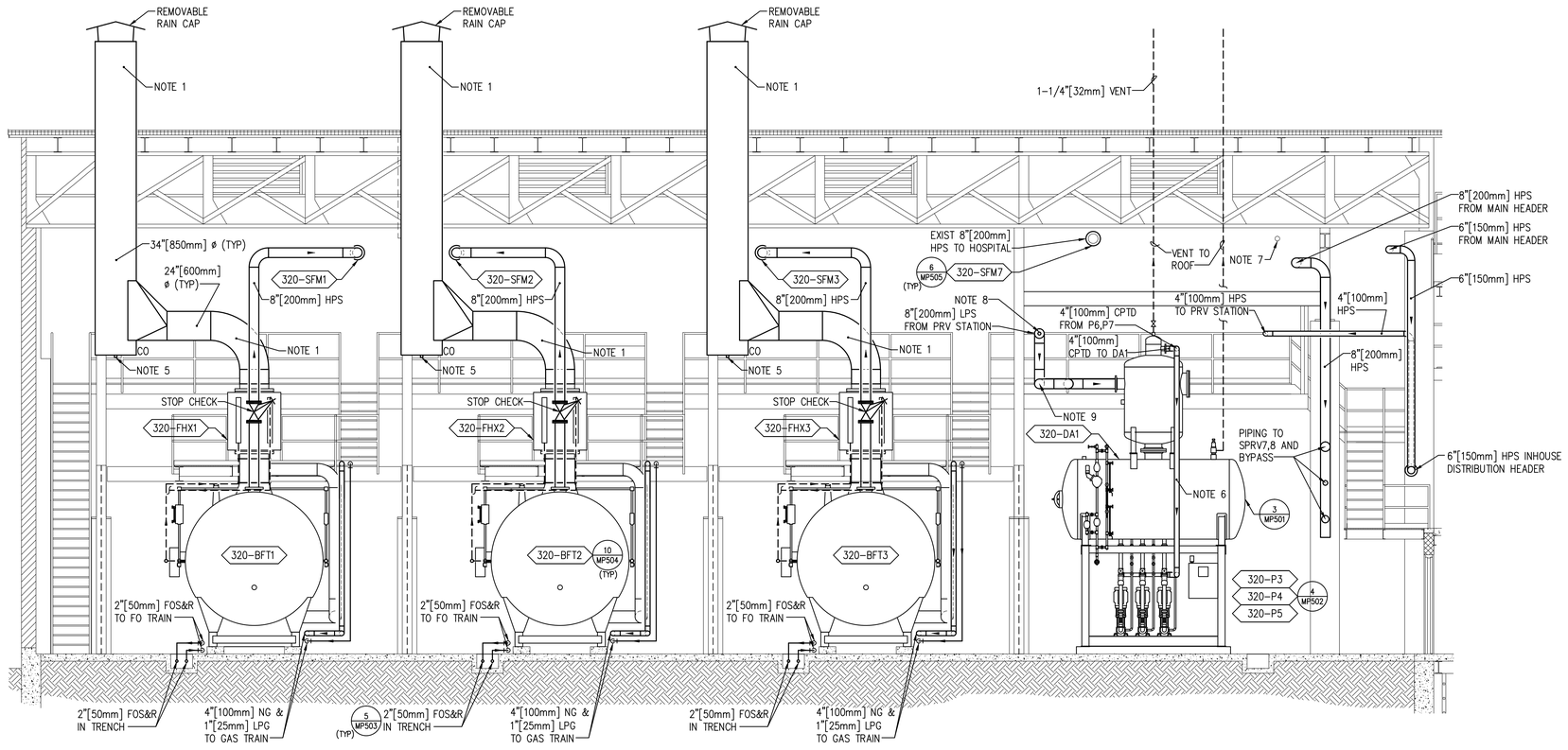
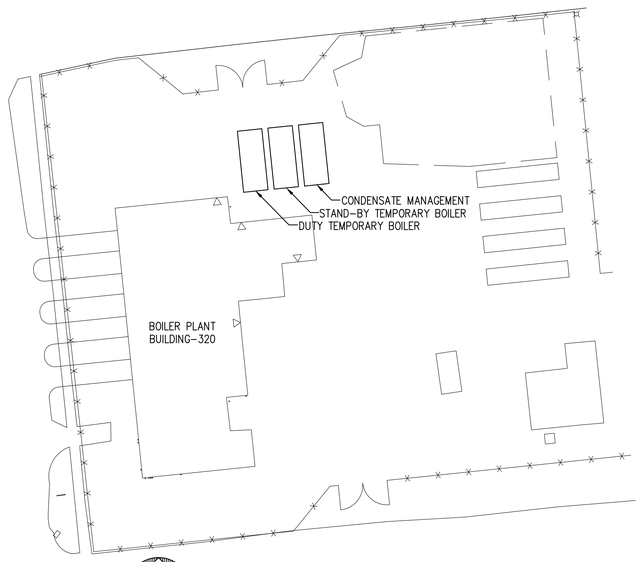
Department of Veterans Affairs

VA FORM 08-6231



SECTION 1/MP101

SCALE:1/4"=1'-0"
BOILER PLANT SECTION



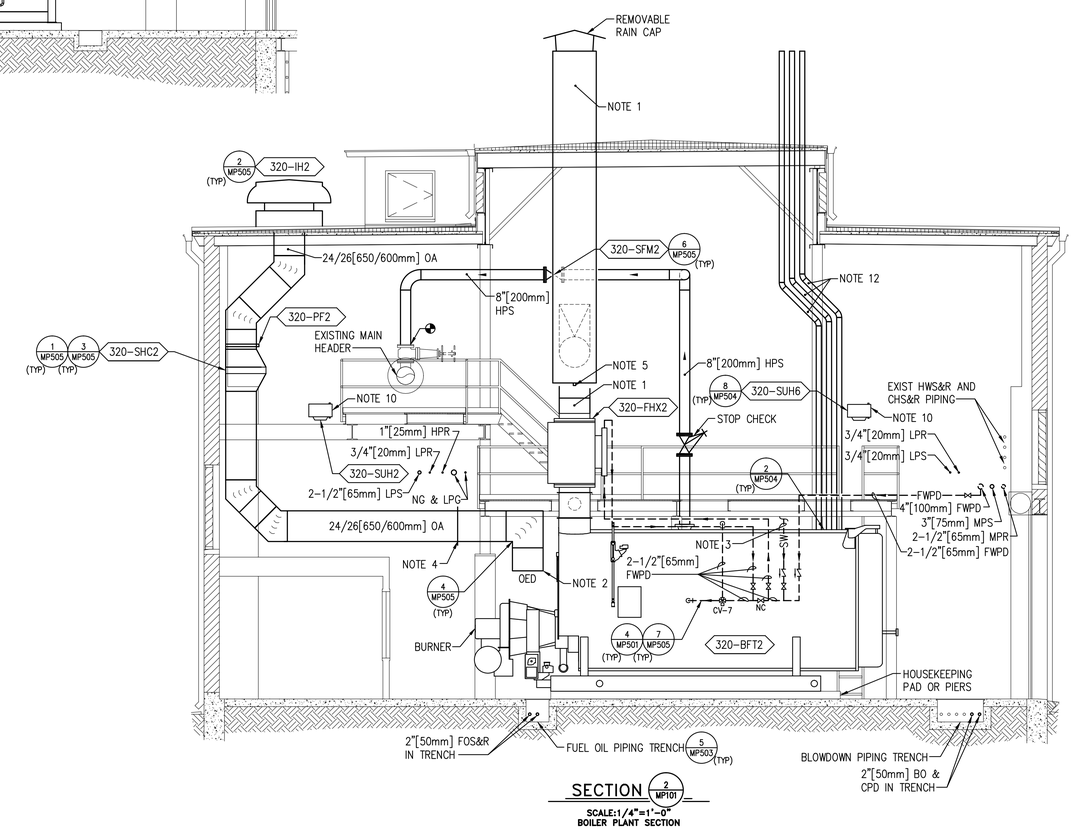
SITE PLAN – MECHANICAL

SCALE: NO SCALE

NOTE 11

NOTES:

1. FURNISH AND INSTALL ALL BREECHING. 24"[600mm] ø BREECHING FROM BOILER SHALL TRANSITION TO 34"[850mm] ø VERTICAL BREECHING TO ROOF. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL BREECHING SIZING WITH BOILER MANUFACTURER AND BREECHING MANUFACTURER. BREECHING SHALL BE INSTALLED AND SUPPORTED PER MANUFACTURERS' RECOMMENDATIONS. BREECHING SHALL TERMINATE 6'-0"[1.83m] ABOVE FINISHED ROOF WITH A REMOVABLE RAIN CAP.
2. 24/26[650/600mm] OA. TERMINATE AS AN OPEN ENDED DUCT AT 8'-0"[2.4m] ABOVE FINISHED FLOOR. DUCT END SHALL BE COVERED WITH 1/2"[15mm] BIRD SCREEN.
3. REFER TO PLUMBING DRAWINGS FOR CONNECTION TO SOFTENED WATER.
4. FURNISH AND INSTALL A DUCT FLANGE AT THIS POINT FOR EASE OF COMBUSTION AIR DUCTWORK REMOVAL DURING BOILER MAINTENANCE.
5. 1"[25mm] FLUE DRAIN SHALL BE PIPED TO THE NEAREST FLOOR DRAIN. FURNISH AND INSTALL AN ACCESSORY ACID NEUTRALIZATION DEVICE FOR EACH FLUE. ACID NEUTRALIZATION DEVICE SHALL BE INSTALLED IN AN EASILY ACCESSIBLE LOCATION.
6. 4"[100mm] CPTD DEAERATOR BYPASS TO BOILER FEEDWATER PUMPS P3,P4,P5 INLET.
7. EXIST 4"[100mm] PC TO TEMPORARY BOILER CONNECTION.
8. 2-1/2"[65mm] LPS WITH 1/3 & 2/3 CONTROL VALVES AND BYPASS TO CS1.
9. 8"[200mm] LPS WITH 1/3 & 2/3 CONTROL VALVES AND BYPASS TO DA1.
10. COORDINATE FINAL STEAM UNIT HEATER HEIGHTS AND LOCATIONS WITH CATWALK STRUCTURE.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED PIPING, PIPING CONNECTIONS, PIPING SUPPORTS, ALL HEAT TRACING, CONTROLS, AND APPURTENANCES TO TEMPORARY BOILERS AND CONDENSATE MANAGEMENT SYSTEMS. CONTRACTOR SHALL BE RESPONSIBLE TO SUPPORT TEMPORARY BOILERS AND CONDENSATE MANAGEMENTS SYSTEM TRAILERS AS REQUIRED FOR OPERATING CONDITIONS.
12. BOILER SAFETY RELIEF VALVES SHALL VENT TO ROOF. VENT PIPING SHALL BE SUPPORTED FROM STRUCTURE AS TO NOT PUT STRESS ON BOILER CONNECTION. SIZE VENT PER BOILER MANUFACTURERS' RECOMMENDATIONS. COORDINATE WITH MANUFACTURER FOR SAFETY RELIEF VALVE SIZING AND QUANTITIES.



SECTION 2/MP101

SCALE:1/4"=1'-0"
BOILER PLANT SECTION

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2011130.02	RGG	RGG	DJB

Revisions: | Date

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Drawing Title: SECTIONS AND SITE PLAN - MECHANICAL

Approved: Project Director

Project Title: BOILER PLANT UPGRADE PHASE V

Location: VAMC MARTINSBURG, WV

Date: 10.22.2013 | Checked | Drawn

Project Number: 613-12-501

Building Number: 320

Drawing Number: 320-MP301

Dwg. 31 of 44

Office of Construction and Facilities Management

Department of Veterans Affairs

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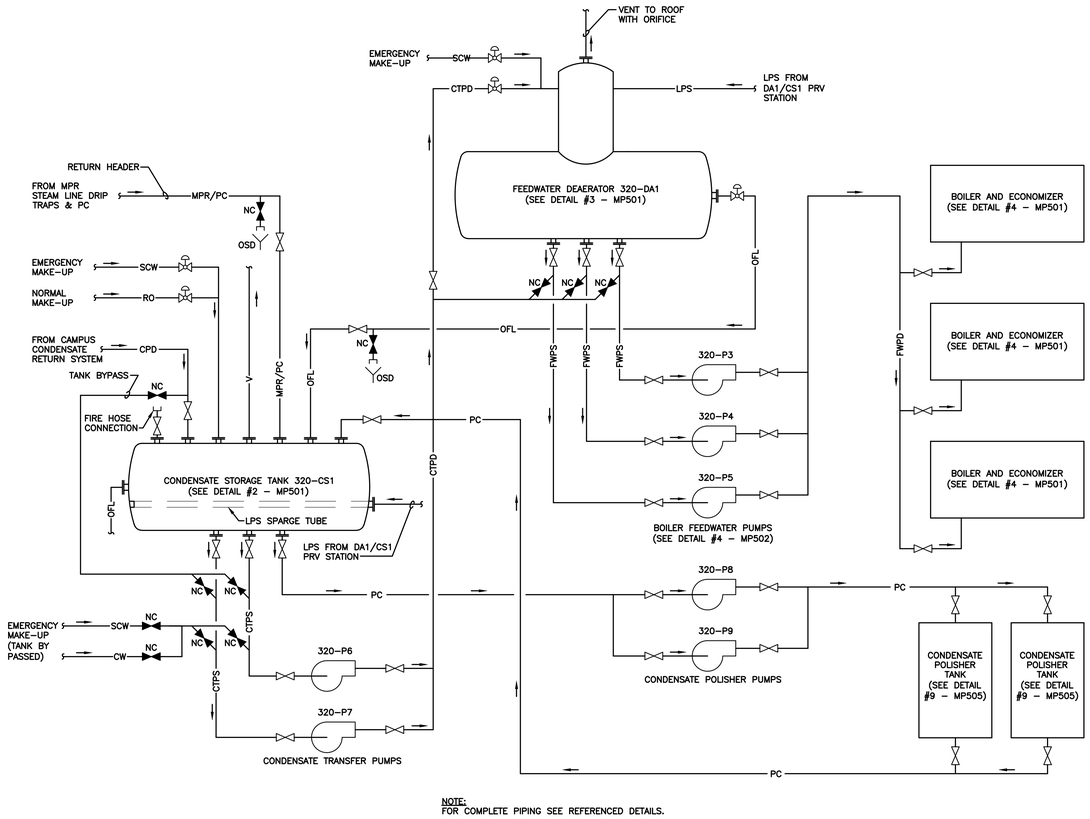
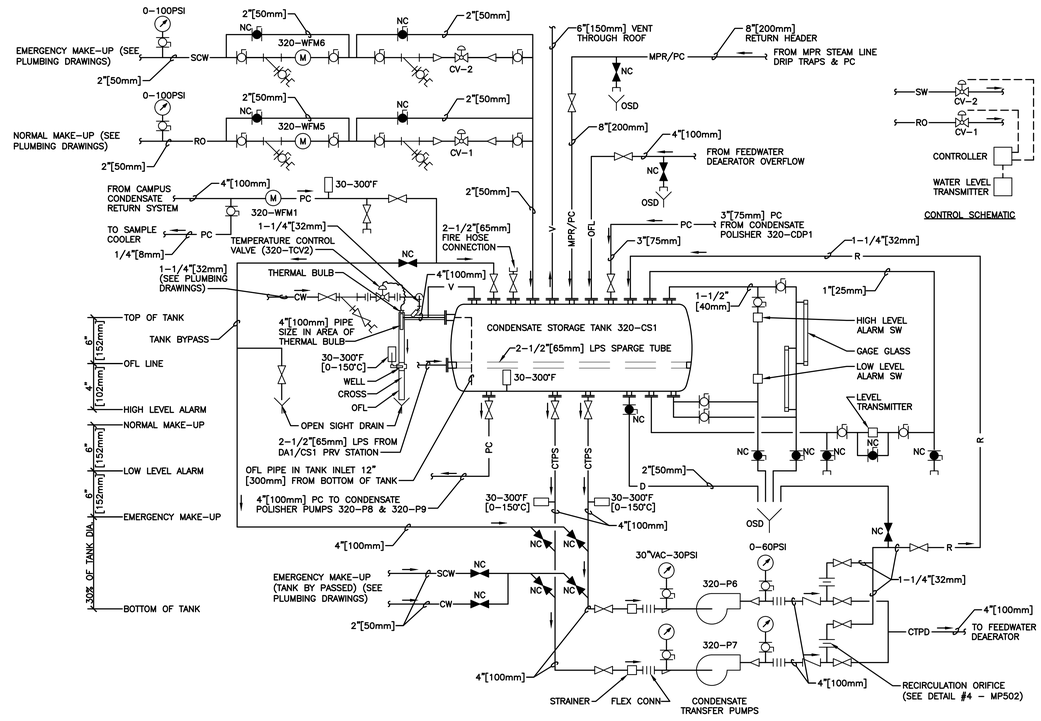
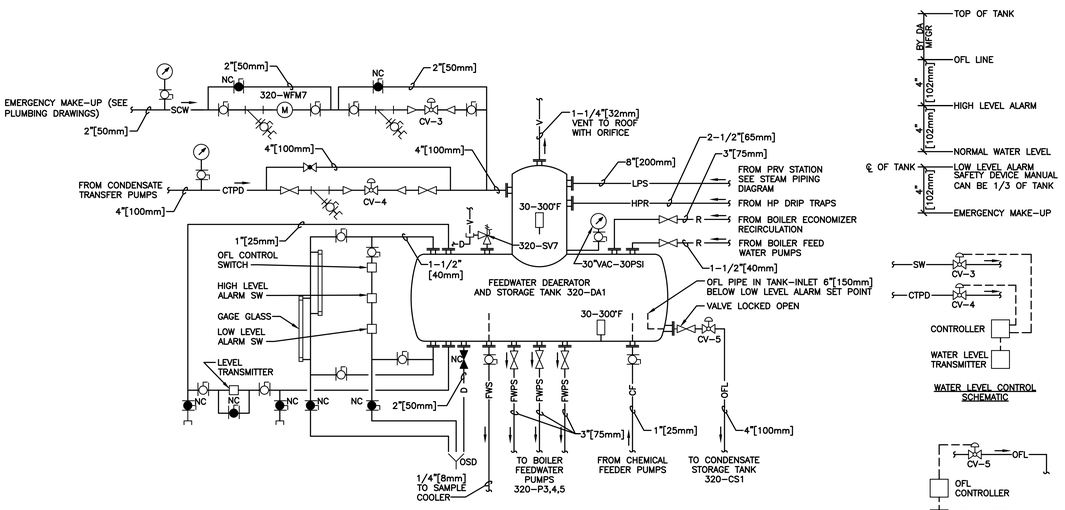


NOTE:
FOR COMPLETE PIPING SEE REFERENCED DETAILS.

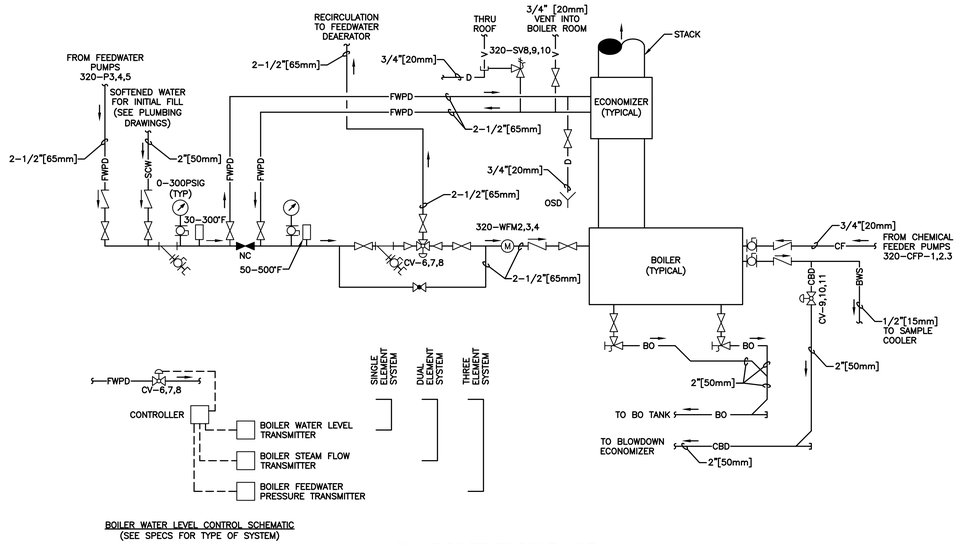
1 BASIC FLOW DIAGRAM - CONDENSATE AND BOILER FEEDWATER
NTS



2 CONDENSATE STORAGE AND TRANSFER FLOW DIAGRAM
NTS



3 FEEDWATER DEAERATOR FLOW DIAGRAM
NTS



4 BOILER FLOW DIAGRAM
NTS

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Revisions:	Date

Drawing Title: DETAILS - MECHANICAL

Approved: Project Director

Project Title: BOILER PLANT UPGRADE PHASE V

Location: VAMC MARTINSBURG, WV

Date: 10.22.2013 | Checked | Drawn

Project Number: 613-12-501

Building Number: 320

Drawing Number: 320-MP501

Dwg. 32 of 44

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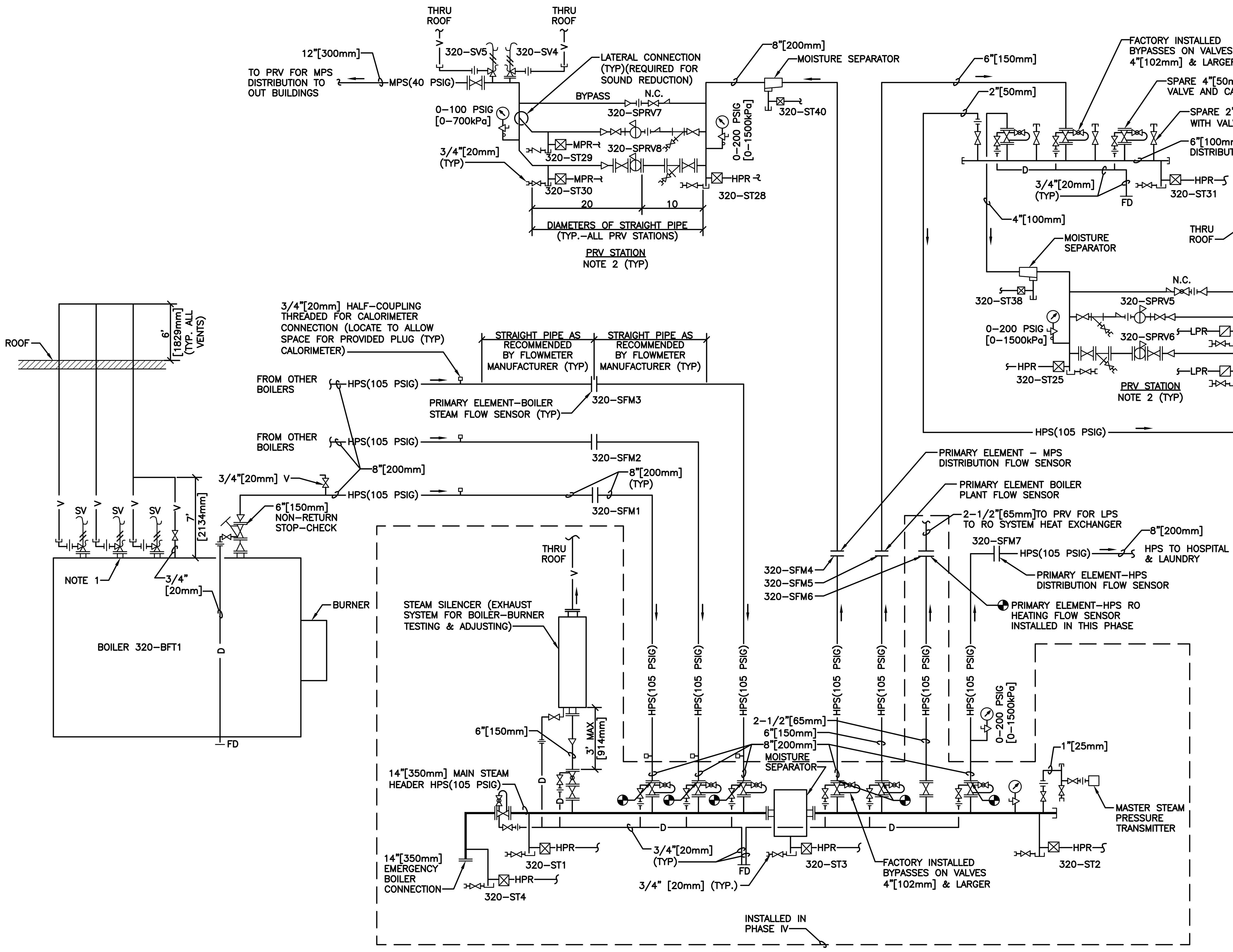
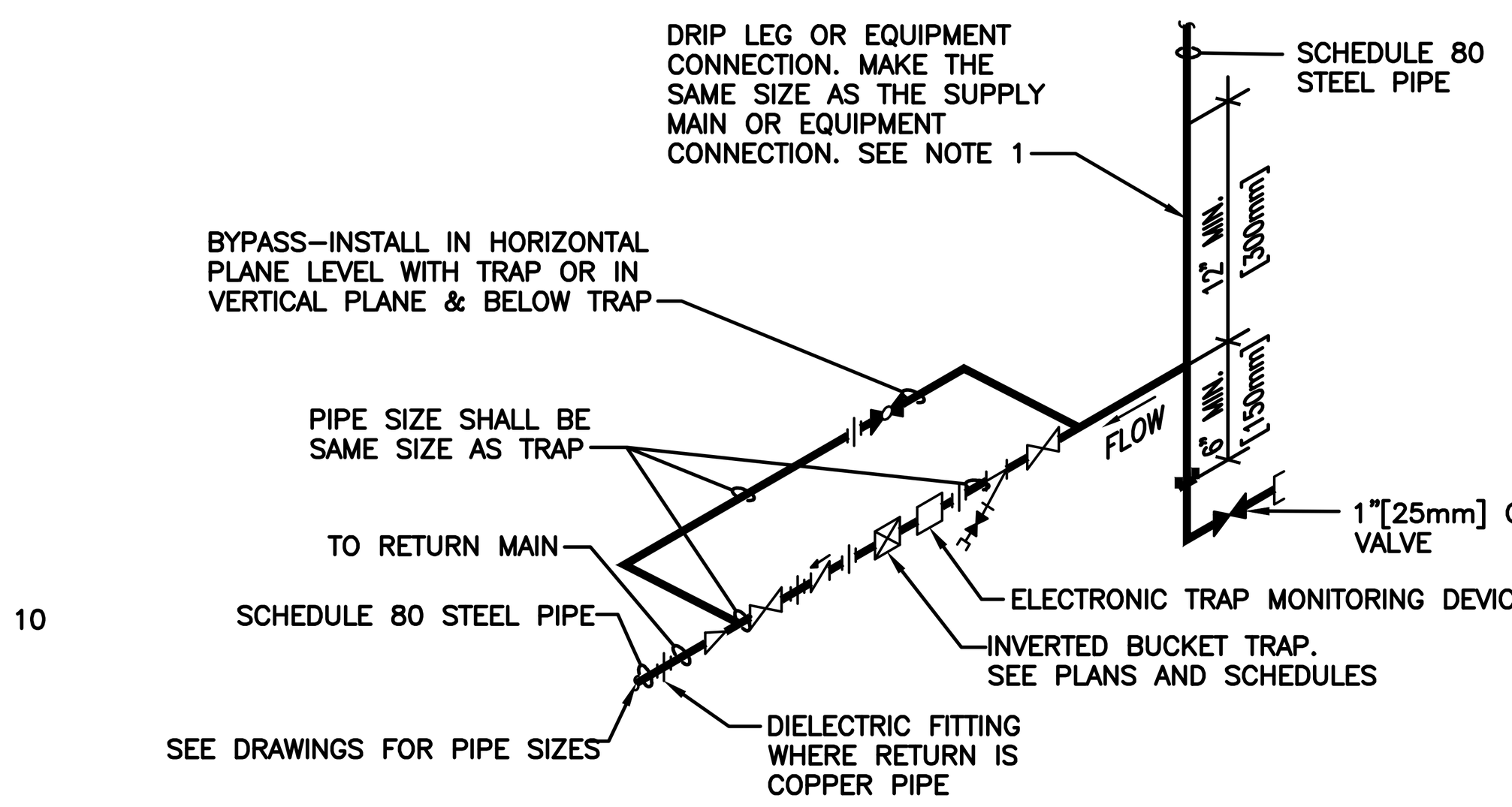


NOTE:

1. COORDINATE WITH BOILER MANUFACTURER FOR STEAM SAFETY VALVE SIZING AND QUANTITY.
2. REFER TO PRESSURE REDUCING STATION DETAILS FOR INDIVIDUAL PIPE SIZES.
3. REFER TO SPECIFICATIONS FOR CONNECTION TYPES.

1 STANDARD STEAM BOILER PLANT PIPING DIAGRAM

NTS

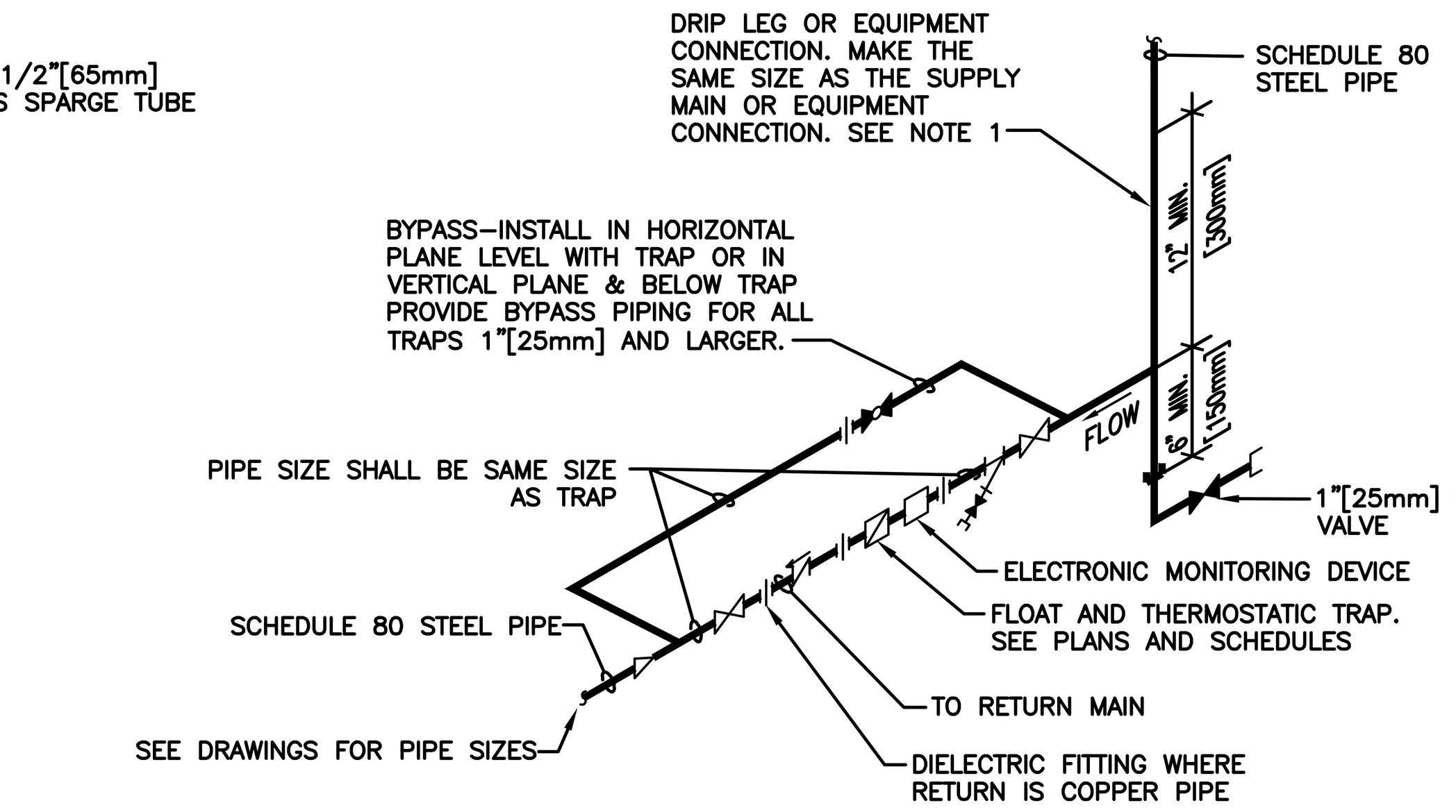


NOTE:

1. ALL DRIP POINTS ON STEAM MAINS SHALL BE PROVIDED WITH A 12"[300mm] MINIMUM HIGH DRIP LEG FROM BOTTOM OF STEAM MAIN TO TRAP INLET. DRIP LEG SHALL HAVE 6" SCALE POCKET BELOW TRAP INLET.
2. PROVIDE BYPASS PIPING.

2 INVERTED BUCKET STEAM TRAP ASSEMBLY (ALL MPR AND HPR)

NTS

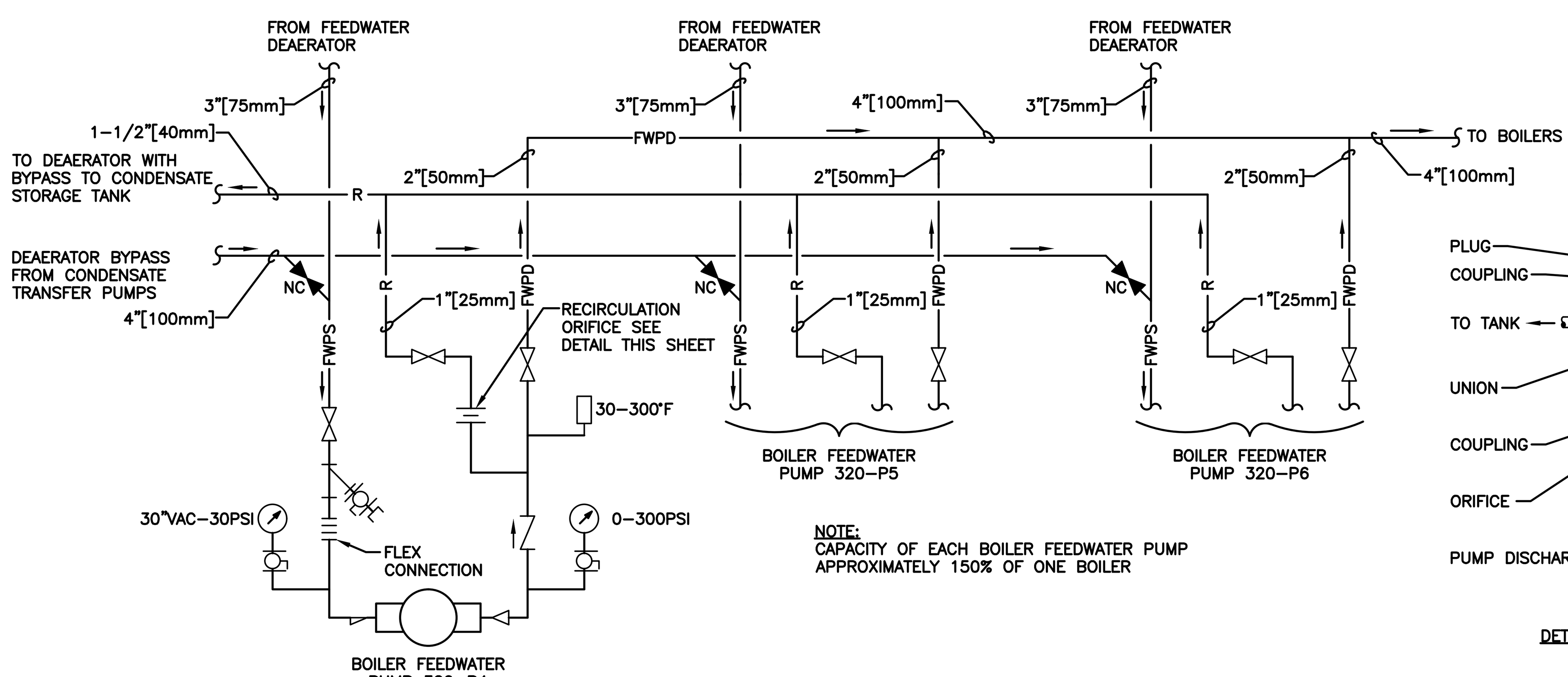


NOTE:

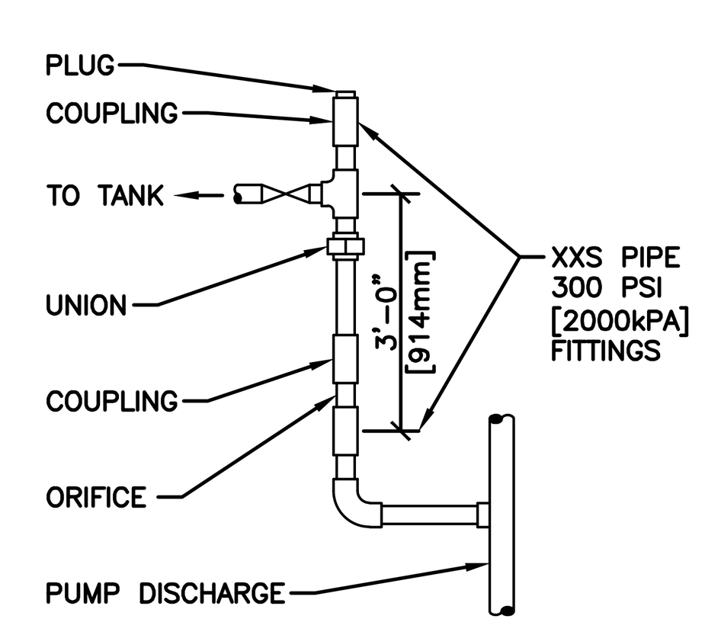
1. ALL DRIP POINTS ON STEAM MAINS SHALL BE PROVIDED WITH A 12"[300mm] MINIMUM HIGH DRIP LEG FROM BOTTOM OF STEAM MAIN TO TRAP INLET. DRIP LEG SHALL HAVE 6" SCALE POCKET BELOW TRAP INLET.

3 FLOAT AND THERMOSTATIC STEAM TRAP ASSEMBLY (LPR ONLY)

NTS



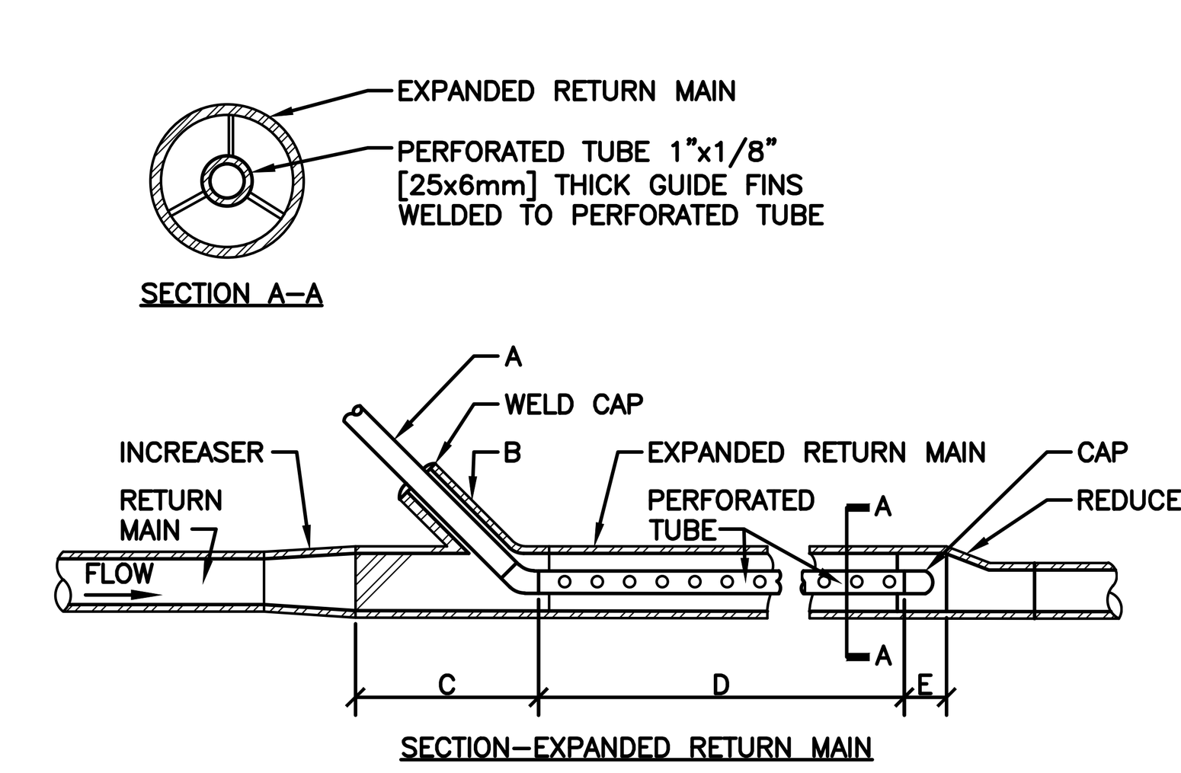
NOTE:
CAPACITY OF EACH BOILER FEEDWATER PUMP APPROXIMATELY 150% OF ONE BOILER



DETAIL - PUMP RECIRCULATION ORIFICE ASSEMBLY

4 BOILER FEEDWATER PUMPS FLOW DIAGRAM

NTS



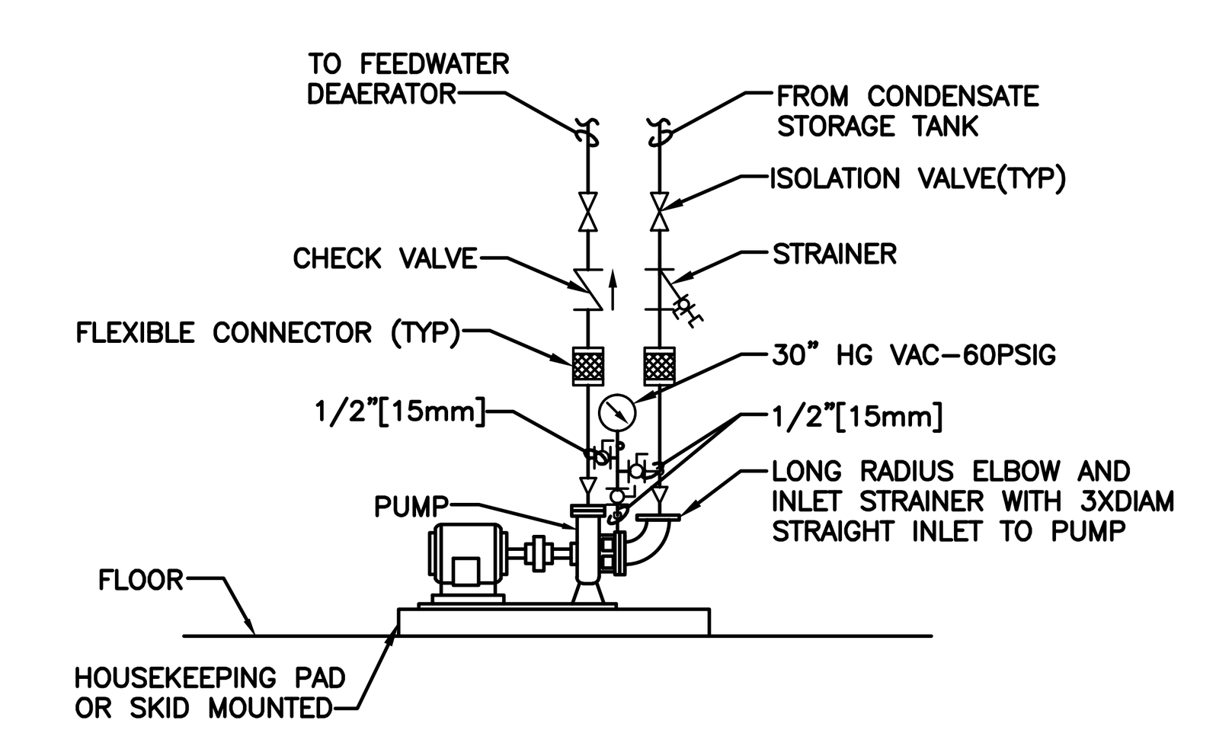
A	SIZE, TRAP DISCHARGE LINE	1/2" [15mm]	3/4" [20mm]
B	SIZE, 45° WELDING NIPPLE	1" [25mm]	1-1/4" [32mm]
C	LENGTH OF EXPANDED MAIN AHEAD OF TRAP DISCHARGE PIPE	7" [175mm]	7" [175mm]
D	LENGTH OF PERFORATED PIPE	16-1/2" [415mm]	16-1/2" [415mm]
E	LENGTH OF EXPANDED MAIN OF FOLLOWING PERFORATED PIPE	2" [50mm]	2" [50mm]

RETURN MAIN SIZE	UP TO 1-1/2" [40mm]	2" [50mm]	3" [75mm] & OVER
EXPANDED RETURN MAIN SIZE		2-1/2" [65mm]	SAME SIZE

NOTES:
1. 1/2" [15mm] PERFORATED TUBE SHALL HAVE 40 - 1/8" [16mm] DIAMETER HOLES SPACED 1-1/2" [40mm] O.C. IN 4 ROWS.
2. 3/4" [20mm] PERFORATED TUBE SHALL HAVE 78 - 1/8" [6mm] DIAMETER HOLES SPACED 1-1/2" [40mm] O.C. IN 6 ROWS.
3. HOLES IN TUBE SHALL BE SPACED EQUALLY AROUND PERIMETER.

5 HIGH AND MEDIUM PRESSURE STEAM TRAP DISCHARGE INTO PUMPED CONDENSATE RETURN LINE

NTS



NOTES:
SEE SPECIFICATION SECTION "PUMPS" FOR Y STRAINER OPTION

6 BASE MOUNTED CONDENSATE TRANSFER PUMPS

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Drawing Title: DETAILS - MECHANICAL

Approved: Project Director

Project Title: BOILER PLANT UPGRADE PHASE V

Location: VAMC MARTINSBURG, WV

Date: 10.22.2013 | Checked | Drawn

Project Number: 613-12-501

Building Number: 320

Drawing Number: 320-MP502

Dwg. 33 of 44

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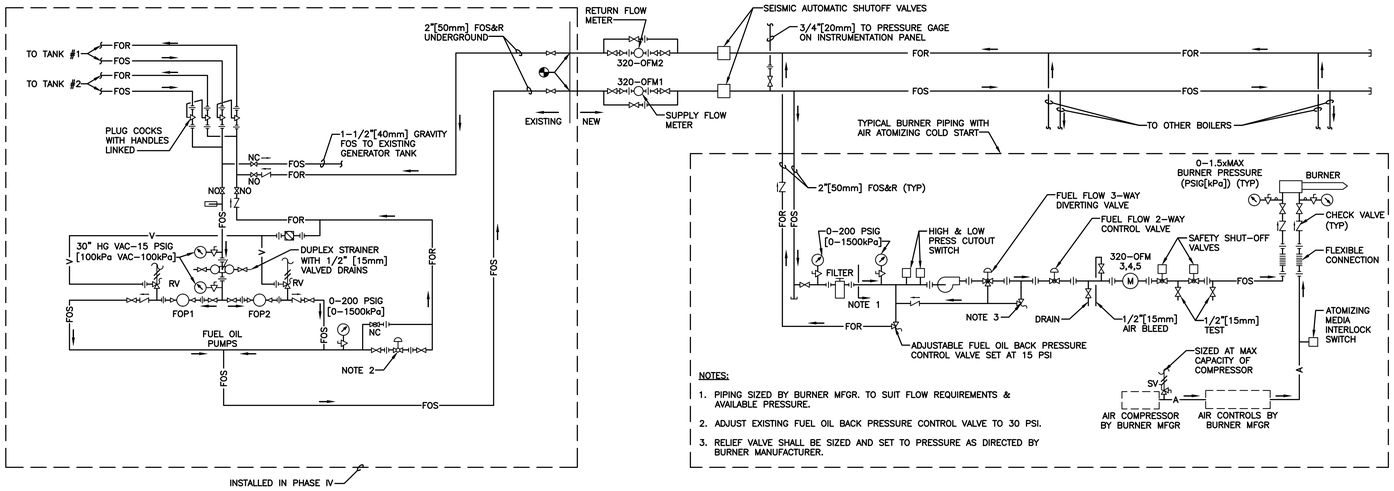
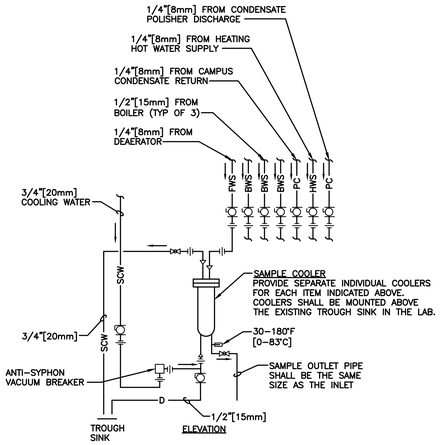
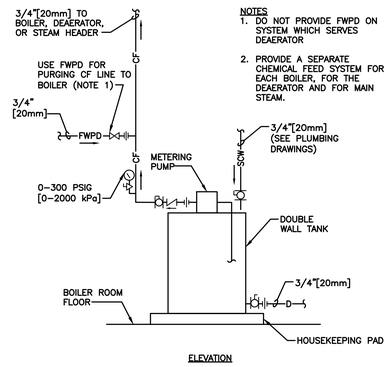


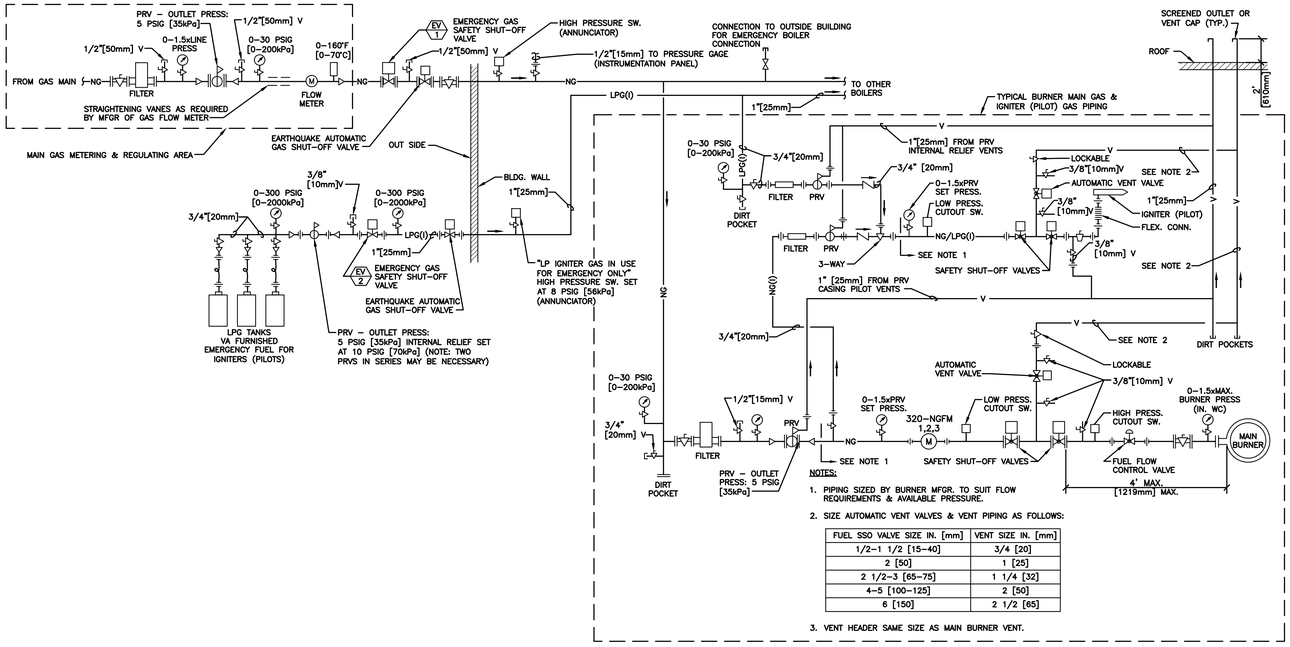
1 ULTRA LOW SULFUR DIESEL BURNER FUEL SYSTEMS - STANDARD PIPING DIAGRAM
NTS



2 WATER SAMPLE COOLERS
NTS

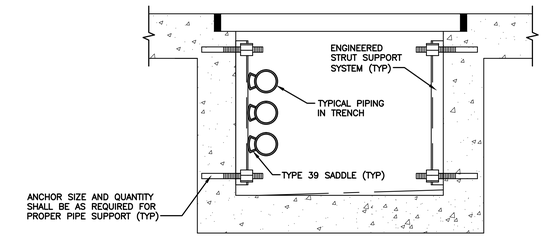


3 CHEMICAL FEED SYSTEM - PUMPED TYPE
NTS



FUEL SSO VALVE SIZE IN. [mm]	VENT SIZE IN. [mm]
1/2-1 1/2 [15-40]	3/4 [20]
2 [50]	1 [25]
2 1/2-3 [65-75]	1 1/4 [32]
4-5 [100-125]	2 [50]
6 [150]	2 1/2 [65]

4 NATURAL GAS AND LIQUEFIED PETROLEUM GAS - BURNER AND IGNITER FUEL STANDARD PIPING DIAGRAM
NTS



NOTE:
1. REFER TO ARCHITECTURAL & STRUCTURAL DRAWINGS FOR ACTUAL TRENCH CONSTRUCTION AND DIMENSIONS.

5 PIPING IN PIPE TRENCH IN BUILDING
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Drawing Title: DETAILS - MECHANICAL

Approved: Project Director:

Project Title: BOILER PLANT UPGRADE PHASE V

Location: VAMC MARTINSBURG, WV

Date: 10.22.2013 | Checked: | Drawn:

Project Number: 613-12-501

Building Number: 320

Drawing Number: 320-MP503

Dwg. 34 of 44

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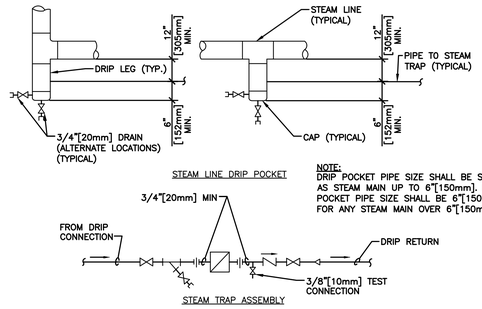
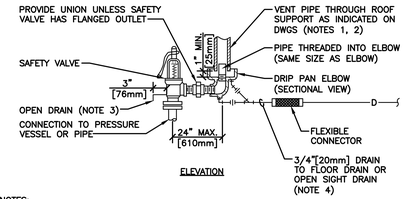


NOTE:
DRIP POCKET PIPE SIZE SHALL BE SAME AS STEAM MAIN UP TO 6"[150mm]. DRIP POCKET PIPE SIZE SHALL BE 6"[150mm] FOR ANY STEAM MAIN OVER 6"[150mm].

1 STEAM LINE DRIP POCKET STEAM TRAP ASSEMBLY

NTS

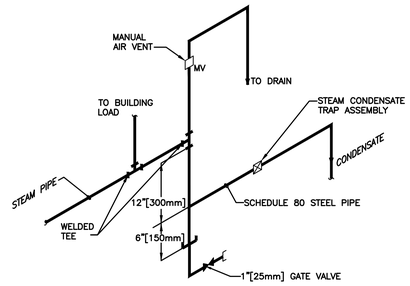


NOTES:

1. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, SIZE THE VENT PIPE SO THAT STEAM IS NOT BLOWN OUT AT THE VENT PIPE ENTRANCE. UTILIZE THE CALCULATION METHOD CONTAINED IN ANSI B31.1. POWER PIPING CODE, APPENDIX II.
2. VENT PIPE SHALL TERMINATE 6'[1829mm] MIN. ABOVE FINISHED ROOF.
3. DISCHARGE OF DRAIN MUST BE DIRECTED AWAY FROM PLATFORMS OR OTHER AREAS WHICH PERSONNEL MAY OCCUPY.
4. DO NOT CONNECT ANY OTHER DRAIN TO THE DRIP PAN ELBOW DRAIN PIPE.

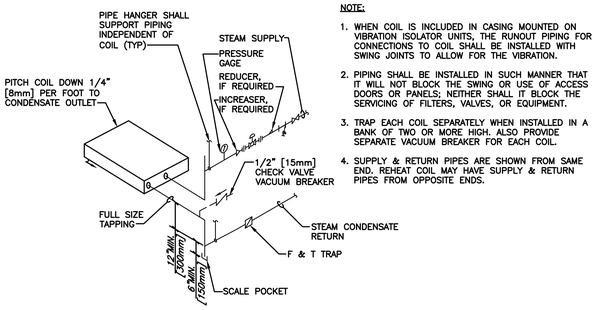
2 STEAM SAFETY VALVE

NTS



3 END OF STEAM LINE DRIP TRAP

NTS

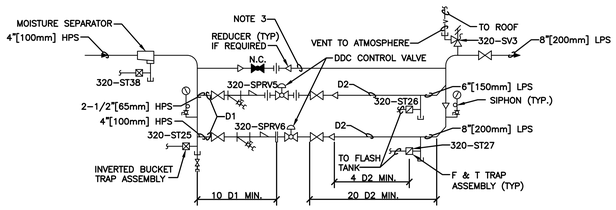


NOTE:

1. WHEN COIL IS INCLUDED IN CASING MOUNTED ON VIBRATION ISOLATOR UNITS, THE RUNOUT PIPING FOR CONNECTIONS TO COIL SHALL BE INSTALLED WITH SWING JOINTS TO ALLOW FOR THE VIBRATION.
2. PIPING SHALL BE INSTALLED IN SUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOORS OR PANELS; NEITHER SHALL IT BLOCK THE SERVICING OF FILTERS, VALVES, OR EQUIPMENT.
3. TRAP EACH COIL SEPARATELY WHEN INSTALLED IN A BANK OF TWO OR MORE HIGH. ALSO PROVIDE SEPARATE VACUUM BREAKER FOR EACH COIL.
4. SUPPLY & RETURN PIPES ARE SHOWN FROM SAME END. REHEAT COIL MAY HAVE SUPPLY & RETURN PIPES FROM OPPOSITE ENDS.

4 STEAM COIL - PIPING CONNECTIONS

NTS

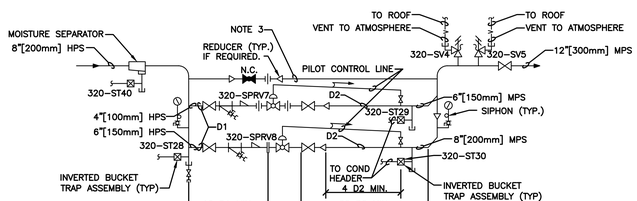


NOTE:

1. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY/COORDINATE PIPING SIZES UPSTREAM & DOWNSTREAM OF THE PRESSURE REDUCING VALVE WITH THE VALVE MANUFACTURER.
2. SEE EQUIPMENT SCHEDULES FOR VALVE DATA AND PIPE SIZES D1 AND D2. INSTALL VALVES AS RECOMMENDED BY MANUFACTURER.
3. MAKE BYPASS VALVE DISCHARGE PIPE THE SAME SIZE AS D2 FOR THE LARGEST PRV.
4. PROVIDE NECESSARY UNIONS FOR THE REMOVAL OF VALVE WITH SCREWED CONNECTIONS.
5. PRV STATION SHALL BE PROVIDED WITH DDC CONTROL VALVES FOR REDUCING PRESSURE IN LIEU OF PILOT OPERATED PRESSURE REDUCING VALVES.

5 STEAM PRESSURE REDUCING STATION DOUBLE VALVE (1/3 AND 2/3) - DEAERATOR/ STORAGE TANK HEATING

NTS

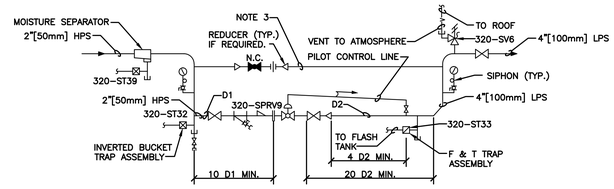


NOTE:

1. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY/COORDINATE PIPING SIZES UPSTREAM & DOWNSTREAM OF THE PRESSURE REDUCING VALVE WITH THE VALVE MANUFACTURER.
2. SEE EQUIPMENT SCHEDULES FOR VALVE DATA AND PIPE SIZES D1 AND D2. INSTALL VALVES AS RECOMMENDED BY MANUFACTURER.
3. MAKE BYPASS VALVE DISCHARGE PIPE THE SAME SIZE AS D2 FOR THE LARGEST PRV.
4. PROVIDE NECESSARY UNIONS FOR THE REMOVAL OF VALVE WITH SCREWED CONNECTIONS.

6 STEAM PRESSURE REDUCING STATION DOUBLE VALVE (1/3 AND 2/3) - OUTBUILDING

NTS



NOTE:

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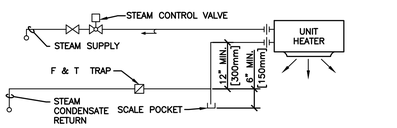
2. SEE EQUIPMENT SCHEDULES FOR VALVE DATA AND PIPE SIZES D1 AND D2. INSTALL VALVES AS RECOMMENDED BY MANUFACTURER.
3. MAKE BYPASS VALVE DISCHARGE PIPE THE SAME SIZE AS D2 FOR THE LARGEST PRV.
4. PROVIDE NECESSARY UNIONS FOR THE REMOVAL OF VALVE WITH SCREWED CONNECTIONS.

7 STEAM PRESSURE REDUCING STATION BOILER PLANT INHOUSE STEAM

NTS



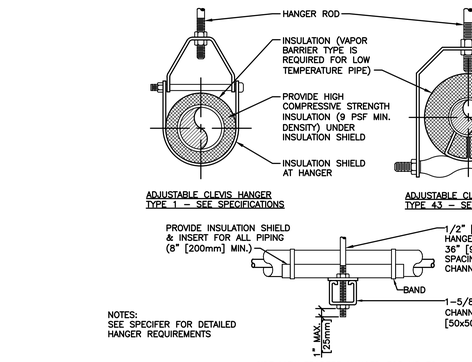
PIPING CONNECTIONS TO VERTICAL TYPE STEAM UNIT HEATER

NOTE:

1. SPACE MOUNTED THERMOSTAT SHALL MAINTAIN SPACE TEMPERATURE BY CYCLING THE FAN. THE CONTROL VALVE SHALL BE INTERLOCKED WITH THE FAN.

8 UNIT HEATERS (STEAM) PIPING CONNECTIONS

NTS



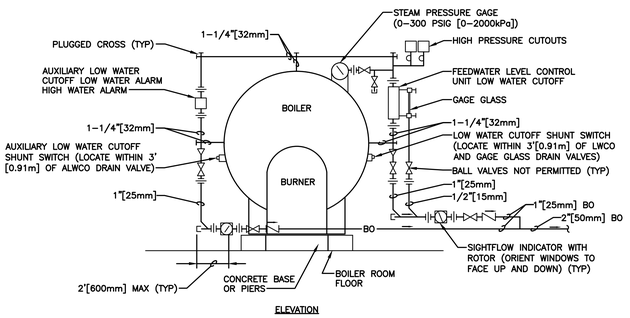
NOTES:
SEE SPECIFER FOR DETAILED HANGER REQUIREMENTS

MAXIMUM PIPE/TUBING SUPPORT SPACING

NOM. SIZE IN.		THRU 3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
		THRU [20]	[25]	[32]	[40]	[50]	[65]	[75]	[100]	[125]	[150]	[200]	[250]	[300]	[350]
PIPE	FT.	7	7	7	9	10	11	12	14	16	17	19	22	23	25
	[mm]	[2100]	[2100]	[2100]	[2700]	[3000]	[3400]	[3700]	[4100]	[4900]	[5200]	[5800]	[6700]	[7000]	[7600]
TUBING	FT.	5 FT	6	7	8	8	9	10	12	13	14	16	–	–	–
	[mm]	[1500]	[1800]	[2100]	[2400]	[2400]	[2700]	[3000]	[3700]	[4000]	[4100]	[4900]	–	–	–
NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.															

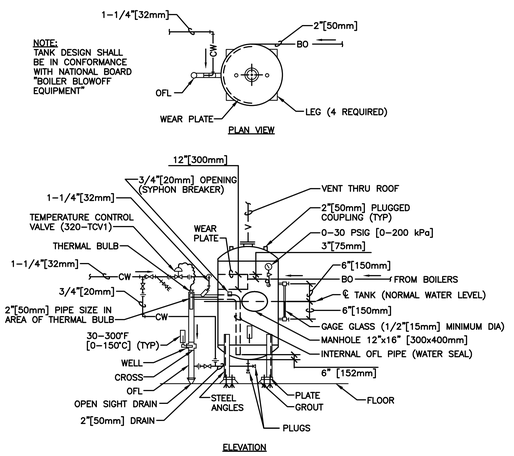
9 PIPE HANGERS

NTS



10 FIRE TUBE BOILER

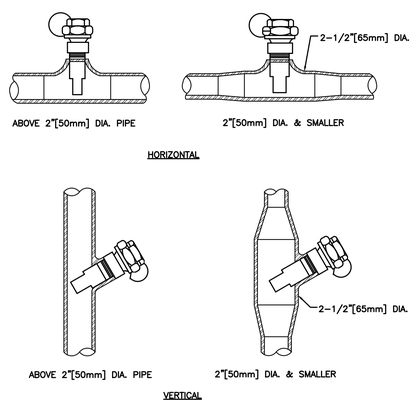
NTS



NOTE:
TANK DESIGN SHALL BE IN CONFORMANCE WITH NATIONAL BOARD "BOILER BLOWOFF EQUIPMENT"

11 BOILER BLOWOFF TANK

NTS



12 INSTALLATION OF THERMOMETER WELLS

NTS

Revisions:	Date

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PROJECT No.	DRAWN BY:	DESIGNED BY:	CHECKED BY:
2011130.02	RGG	RGG	DJB

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Drawing Title	DETAILS - MECHANICAL
Approved: Project Director	
Project Title	BOILER PLANT UPGRADE PHASE V
Location	VAMC MARTINSBURG, WV
Date	10.22.2013
Checked	
Drawn	
Project Number	613-12-501
Building Number	320
Drawing Number	320-MP504
	Dwg. 35 of 44

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

PROJECT NO.: VA245-P-0622 Task #3	SYSTEM OUTPUTS					SYSTEM INPUTS																				SYSTEM SOFTWARE/CONTROL																				PAGE: 1
BUILDING: 320	BINARY			ANALOG		BINARY								ANALOG												ALARM PROCESSING							APPLICATION/FUNCTION											
SYSTEM: BOILER BFT1																																													
SYSTEM COMPONENT:	ELECTRIC DEVICE	START/STOP	OPEN/CLOSE	SPEED COMMAND	VALVE POSITION	DAMPER POSITION	STATUS	ALARM	PRESSURE	HIGH HUMIDITY	HIGH STATIC PRESSURE	LOW TEMPERATURE	TEMPERATURE (TI)	PRESSURE	POSITION	FLOW	PERCENT OF LOAD	STATIC PRESSURE	CARBON MONOXIDE	FIRING RATE	HERTZ	PARTS PER MILLION	VOLTAGE	HIGH LIMIT	LOW LIMIT	STATUS	SCHEDULE START/STOP	FUNCTION	DUTY CYCLE	TEMPERATURE ECONOMIZER	ENTHALPY ECOMONIZER	TEMPERATURE RESET	DEMAND LIMITING	TEMPERATURE OVERRIDE	STATIC PRESSURE RESET	PRESSURE/VOLUME CONTROL	FAILURE MODE	SPACE TEMPERATURE CONTROL	FULL COMMUNICATION	TRENDING	GRAPHICS	REMARKS
STATUS							■									■																											■	
BURNER																				■																							■	
FORCED DRAFT FAN						■	■																			■																	■	
DIFFERENTIAL PRESSURE									■																																		■	
VARIABLE FREQUENCY DRIVE (VFD)																					■					■																	■	
VFD FAULT							■																																				■	
VOLTAGE A to B																							■	■																			■	
VOLTAGE B to C																							■	■																			■	
VOLTAGE C to A																							■	■																			■	
VOLTAGE A to N																							■	■																			■	
VOLTAGE B to N																							■	■																			■	
VOLTAGE C to N																							■	■																			■	
COMBUSTION AIR																																													
OUTSIDE AIR DAMPER		■																																									■	
OUTSIDE AIR DAMPER - OPEN							■																			■																	■	
FILTER												■													■	■																	■	
STEAM CONTROL VALVE						■																				■																	■	
SUPPLY AIR TEMPERATURE													■												■	■																	■	
BOILER STEAM PRESSURE													■												■																			■	
BOILER STEAM FLOW (SFM1)															■		■																											■	
BOILER STACK TEMPERATURE													■																															■	
LEAVING ECONOMIZER TEMPERATURE													■																															■	
ECONOMIZER ENTERING WATER TEMP.													■																															■	
ECONOMIZER LEAVING WATER TEMP.													■																															■	
ECONOMIZER AIR DELTA TEMP.																																													■	Calculated
ECONOMIZER WATER DELTA TEMP.																																													■	Calculated
FLUE GAS RECIRCULATION																																														
FLOW																	■																													
DAMPER POSITION						■																																							
AIR COMPRESSOR (integral)	■						■							■												■																	■	
FUEL PUMP (integral)	■													■												■																	■	
ECONOMIZER STACK DAMPER						■																																							
OXYGEN																		■																											
NOX																										■																	■	
CARBON MONOXIDE																					■					■																	■	
EXCESS AIR																		■																											
WATER LEVEL																										■																	■	
AUXILLIARY WATER LEVEL																																														
BLOWDOWN CONTROL VALVE CV-9						■																																							
BOILER NATURAL GAS FLOW (NGFM1)																																														
BOILER FUEL OIL FLOW (OFM3)																																													
BOILER 2-WAY FUEL OIL VALVE						■																																							
BOILER 3-WAY FUEL OIL VALVE																																														
LP GAS IGNITER PILOT (in use)							■																			■																	■	
PRESSURE									■																																				
STATUS - First out alarm annunciation for each of the following interlocks:																																												First out alarm annunciation.
FLAME FAILURE							■																			■																	■	
PURGE AIRFLOW LOW																																													
COMBUSTION AIRFLOW LOW																																													
FALSE COMBUSTION AIR																																													
HIGH MAIN GAS PRESSURE (at gas train)																																													
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HIGH OIL PRESSURE (at fuel train)																																													
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LOW IGNITER (PILOT) GAS PRESSURE																																													
FUEL SAFETY SHUTOFF VALVES NOT CLOSED PRIOR TO IGNITION CYCLE																																													
LOW FIRE POSITION NOT ATTAINED PRIOR TO IGNITION CYCLE																																													
LOW ATOMIZING MEDIA STATIC PRESSURE AT ATOMIZING MEDIA																																													
SERVICE CONNECTION TO BURNER PIPING																																													
LOW ATOMIZING OIL DIFFERENTIAL PRESSURE																																													
LOW WATER CUTOFF																																													
LOW ATOMIZING AIR PRESSURE																																													
FLUE GAS RECIRCULATION IMPROPER DAMPER POSITION																																													
LOW FLUE GAS OXYGEN																																													
Alarm annunciation, safety shutdown and manual reset required for:																																												Provide alarm annunciation, safety shutdown and manual reset.
FLAME SIGNAL DETECTED PRIOR TO IGNITION CYCLE							■																			■																	■	
PRE-IGNITION INTERLOCK OPEN DURING PRE-PURGE																																													
HIGH FIRE PURGE INTERLOCK FAILS TO CLOSE																																													
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MAIN BURNER FAILS TO IGNITE																																													
MALFUNCTION OF FLAME DETECTOR																																													
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COMBUSTION AIR PROVING SWITCH ACTUATED PRIOR TO START-UP OF FORCED DRAFT FAN																																													
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LOCK-OUT INTERLOCK OPEN DURING IGNITION																																													
LOCK-OUT INTERLOCK OPEN DURING RUN PERIOD																																													
INTERLOCK OPEN																																													
FLAME FAILURE							■																			■																	■	

1 POINTS LIST FOR BOILER BFT1
NTS

PROJECT NO.: VA245-P-0622 Task #3	SYSTEM OUTPUTS					SYSTEM INPUTS																				SYSTEM SOFTWARE/CONTROL																				PAGE: 2
BUILDING: 320	BINARY			ANALOG		BINARY								ANALOG												ALARM PROCESSING							APPLICATION/FUNCTION											
SYSTEM: BOILER BFT2																																													
SYSTEM COMPONENT:	ELECTRIC DEVICE	START/STOP	OPEN/CLOSE	SPEED COMMAND	VALVE POSITION	DAMPER POSITION	STATUS	ALARM	PRESSURE	HIGH HUMIDITY	HIGH STATIC PRESSURE	LOW TEMPERATURE	TEMPERATURE (TI)	PRESSURE	POSITION	FLOW	PERCENT OF LOAD	STATIC PRESSURE	CARBON MONOXIDE	FIRING RATE	HERTZ	PARTS PER MILLION	VOLTAGE	HIGH LIMIT	LOW LIMIT	STATUS	SCHEDULE START/STOP	FUNCTION	DUTY CYCLE	TEMPERATURE ECONOMIZER	ENTHALPY ECOMONIZER	TEMPERATURE RESET	DEMAND LIMITING	TEMPERATURE OVERRIDE	STATIC PRESSURE RESET	PRESSURE/VOLUME CONTROL	FAILURE MODE	SPACE TEMPERATURE CONTROL	FULL COMMUNICATION	TRENDING	GRAPHICS	REMARKS
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BURNER																				■																							■	
FORCED DRAFT FAN						■	■																			■																	■	
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BOILER STEAM PRESSURE													■												■																			■	
BOILER STEAM FLOW (SFM2)																■		■																											■	
BOILER STACK TEMPERATURE													■																															■	
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BOILER 3-WAY FUEL OIL VALVE																																													
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LOCK-OUT INTERLOCK OPEN DURING RUN PERIOD																																													
INTERLOCK OPEN																																													
FLAME FAILURE							■																			■																	■	

2 POINTS LIST FOR BOILER BFT2
NTS

Revisions	Date

CONSULTANTS:

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PROJECT No.	DRAWN BY:	DESIGNED BY:	CHECKED BY:
20111.30.02	RGG	JRA	DJB

DAVID BARTO REGISTERED 19895 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

ARCHITECT/ENGINEERS:

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Drawing Title: CONTROL POINTS LISTS - MECHANICAL
Approved Project Director:
Project Title: BOILER PLANT UPGRADE PHASE V
Location: VAMC MARTINSBURG, WV
Date: 10.22.2013
Checked:
Drawn:
Project Number: 613-12-501
Building Number: 320
Drawing Number: 320-MP506
Dwg. 37 of 44

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231